

NOVEMBER 1950

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CHEMICAL PROCESSING

The News Magazine of Processing Developments and Control

Highlights

of this issue's
278 articles

*Describing developments in
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The Cover Picture

Direct-fired spray dryer. Instrumentation is being applied to many of these units, thereby assuring consistent optimum efficiency and product quality See page 8

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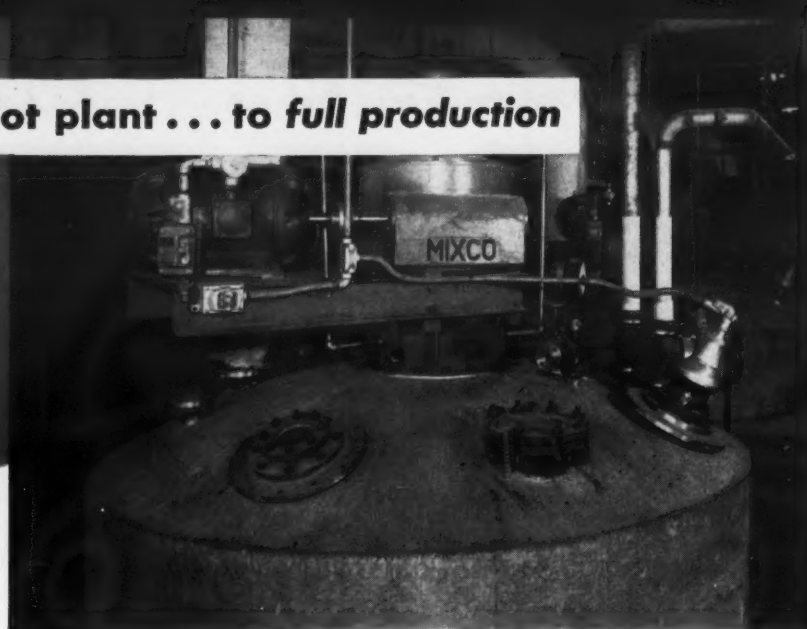
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"That's Interesting"

Molybdenum-based lubricant

A molybdenum-based lubricant, known as Liquid-Moly, has been developed for high speed, high temperature and high pressure applications. It may be used alone or added to other oils. It plates out to form a low-friction film which resists squeezing out by pressure. It is described as having high chemical stability and as operating effectively from sub-zero to red heat. (The Lockrey Co., College Point 1, N. Y.)

Law may prohibit rain

Rainmakers may have to get licenses to practice their art in the near future. This was forecast in an address before a meeting of the New England Association of Chemistry Teachers' Association by Dr. Bernard Vonnegut of General Electric Co. He explained that the "would be" amateur rainmakers can unwittingly cause large scale, and perhaps adverse, modifications of weather many miles from the scene of their operations.

Dr. Vonnegut, Dr. Irving Langmuir, and Dr. Vincent J. Schaefer are the G-E scientists who discovered methods for producing snow and rain from clouds. Dr. Vonnegut discovered the method in which silver iodide, seeded into supercooled or below-freezing clouds, turns such clouds to snow, which may fall either as snow or rain.

Pointing out that there are many fundamental facts of cloud physics yet to be learned, Dr. Vonnegut said that many different types of controlled seeding experiments must be performed to learn these facts, and that amateur cloud seeders confuse such experimentation. (General Electric Co., Schenectady, N. Y.)

Spray RR's right of way to kill weeds

Railroads can now rid the right-of-way of weeds with pentachlorophenol. Sprayed in quantities of 100 gallons or more to the mile, the chemical kills growths that clog roadbeds and prevent drainage, sometimes causing ties to settle. "Penta", originally a wood preservative, is mixed with oil and water to make the spray solution. (Monsanto Chemical Co., St. Louis 4, Mo.)

This would really be a long freight

For every million tons of steel castings produced, nearly a million tons of miscellaneous materials are required in addition to the 1,125,000 tons of scrap steel and 165,000 tons of pig iron. Sand is needed in the vast amount of 700,000 tons, along with 70,000 tons of fuel oil, 25,000 tons of limestone, 25,000 tons of organic and clay binders and 25,000 tons of other miscellaneous materials.

The total of all these materials, 2 1/2 million tons, would require a freight train 400 miles long, comprising 45,000 freight cars. (Steel Founders' Society of America, Midland Bldg., Cleveland 15, Ohio)

For more information on product at left, specify CP 1504 . . . see information request blank between pages 2-3.

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1504d	DH-50 Lab Mixers	1566c	4-Chloro-2-Methylphenoxyacetic Acid	1615b	No. 320 Pressure Reducing Regulator	1686	Dolly Rack
1504e	B-36 Catalog	1566d	Diisobutyl Succinic Anhydride	1615c	No. 86 Diaphragm Valves	1687	Truck Fork Adjuster
1504f	B-75 Portable Mixers	1566e	2-(2-Dimethylaminoethylamino)-Pyridine	1615d	No. 850 Level Controllers	1688	Pneumatic Conveyors
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1510	Gluconic Acid	1566k	Fluid F-9	1620	Processing Kettles	1689f	Hand Dump Trucks
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That's It

Thawing out pipes with

Carolina Power & Light Co. sheet of aluminum foil in pipes that supply the Lumber which is semi-outdoors constant.

Procedure in protecting pipes: layer hot pipe insulation was placed a layer of foil. E wound around the insulate aluminum foil was placed layers of asbestos roll board corrugated aluminum sheet proof wrapping that is attractive painting.

The foil layers distribute resistance cable. (Alcoa Company of America, Pittsburgh)

Sunflower seed source edible oils

Sunflower seed may become was reported in a paper by I to the 118th national meeting. Oil content of the Advance 30% of the total weight of this content is linoleic acid flavor reversion it should find is a problem. One of its pharmaceuticals.

Insecticides absorbed issues, under USDA

chemicals that make plants me are being tested by the culture. Treated plants abate to all parts through the killed. Studies are being all break down into harmful weeks.

chemicals most suitable for derived from the inert carbon the apparent characteristic to break down into tissues has been under chemicals have warranted Department of Agriculture

Plastic-surfaced plywood in frozen food

of a plastic-surfaced plywood, in an Oregon market, plywood to clean and withstand attractive appearance and new plywood is manufacturing Tacoma, Wash. Plastic surface Company as a phenolic

Non-tippable aluminum

lightweight aluminum roof fabric covers, is made by, North Carolina. It is on camping trips. It is

C'mon, it's your me
 items that only old time
 cross their knees and play
 now, however, it is possible
 old the checkers in place
 council, Gary, Ind.)

NOVEMBER, 1950

That's Interesting"

t pipes with aluminum foil

er & Light Company uses about 14,000 square
um foil in preventing freezing of water in pipe-
ly the Lumberton steam electric generating plant,
outdoors construction.

protecting piping was as follows: Standard two-
insulation was first applied, around which was
r of foil. Electrical resistance cable was then
the insulated pipe. Next, a second layer of
was placed over the cable, followed by three
stos roll board and a final weatherproofing of
minum sheet. The latter provides a weather-
g that is attractive and requires no maintenance

rs distribute evenly the heat generated by the
e. (Alcoa Aluminum News Letter, Aluminum
merica, Pittsburgh 19, Pa.)

eed source of

may become an important source of edible oils, it
a paper by Ingmar Sollin and Dr. Carl O. Clagett
tional meeting of the American Chemical Society.
the Advance and Sunrise varieties is approximately
al weight of the seed, and approximately 75% of
linoleic acid. Because the oil is less subject to
it should find increased use where flavor reversion
One of its many uses is as a carrying agent in

absorbed by plant er USDA study

make plants toxic to insects for short periods of
tested by the United States Department of Agri-
d plants absorb these insecticides and distribute
s through the sap. Insects feeding on the plants
dies are being made to find out if these chemicals
n into harmless compounds within a few days or

suitable for applications included in these tests
the inert calcium phosphate rock. Very important
characteristic of compounds obtained from this
down into harmless substitutes. Controlling in-
g or applying insecticides that will be taken into
s been under study for years. But, until recently,
we warranted such extended investigation. (United
at of Agriculture, Washington, D. C.)

ced plywood makes en food lockers

surfaced plywood in individual frozen food lock-
n market, provides an effective vapor barrier. It is
l withstands rough handling. Surface presents an
ance and no additional finish is required.

manufactured by St. Paul & Tacoma Lumber Co.,
Plastic surface is described by Monsanto Chem-
a phenolic resin-impregnated fiber facing.

aluminum hammock

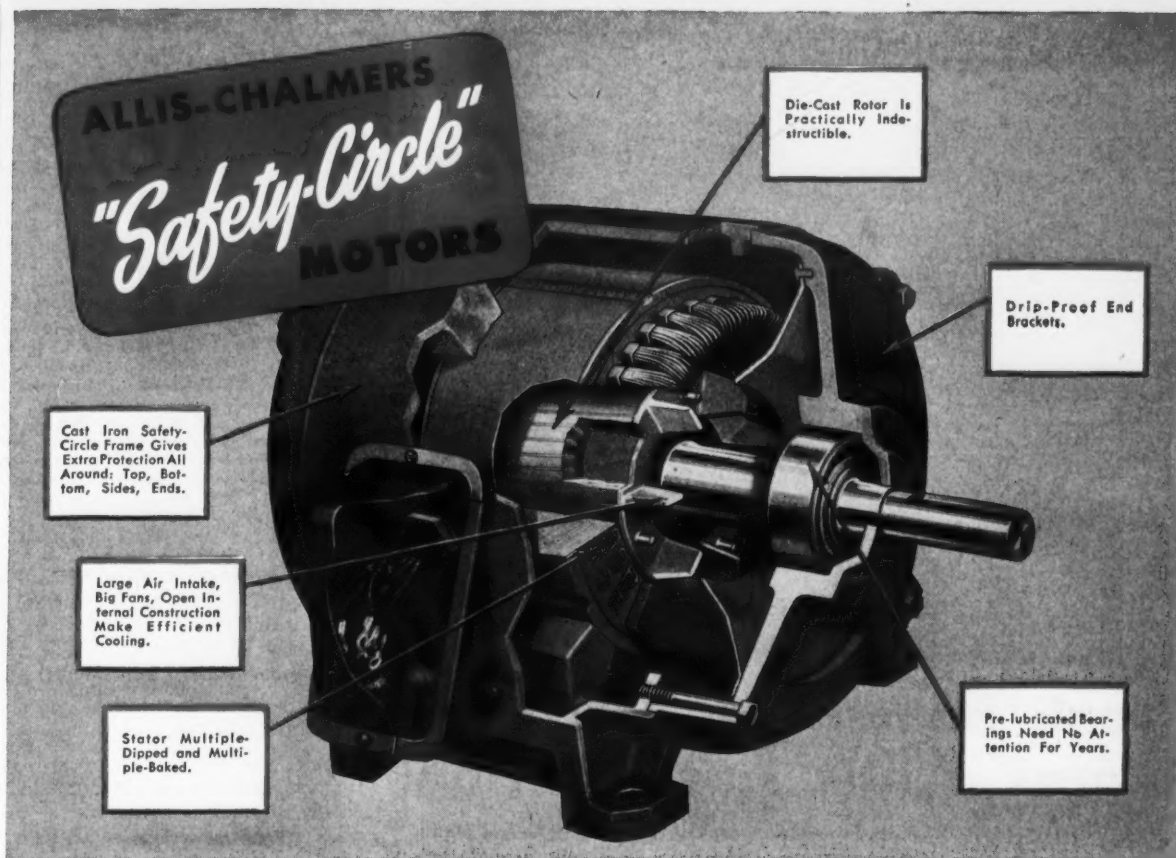
aluminum hammock, with colorful weather-
vers, is made by Houtz & Barwick, Elizabeth
olina. It can be set up on lawn, at the beach
rips. It is non-tippable.

your move!"

old time checker players can place the board
s and play for hours without spilling checkers.
t is possible to buy magnetic checkerboards that
rs in place, even at an angle. (Nat'l. Patent
d.)

(Continued on third cover)

1950



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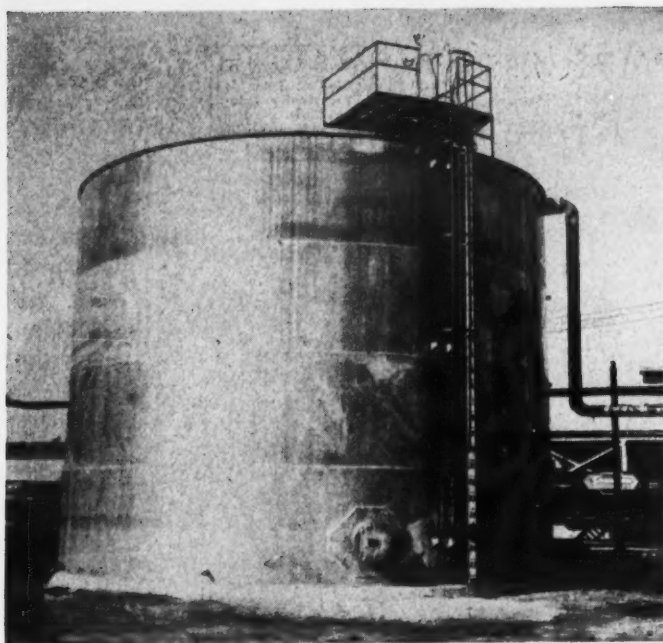
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ton stations and compo-
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trol systems.

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Pitch sheaves, speed
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types from 1/4 in. to
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up.

When inquiring check CP 1505 on handy form, pgs. 2-3



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Houston 2	2131 National Standard Bldg.	Tulsa 3	1649 Hunt Bldg.

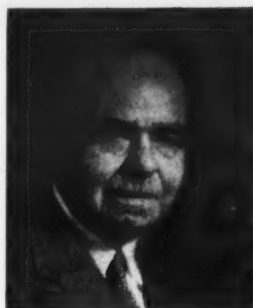
Plants at BIRMINGHAM, CHICAGO, SALT LAKE CITY, and GREENVILLE, PA.

When inquiring check CP 1506 on handy form, pgs. 2-3

The Golden Guarantee

By JAMES F. BELL

Chairman of the Committee on Finance and Technological Progress, General Mills, Inc.



B.S. Univ. Minn., 1901. Joined Washburn Crosby Co. (precursor firm of General Mills) in 1901, elected board of dir. 1909, became v.p. 1915, and elected pres. 1925. General Mills' first pres. 1928, ch. board of dir. 1934; assumed present position 1947.

World War I ch. milling div. of U.S. Food Admin. Legion of Honor of France, Order of the Crown of Belgium for war services. Accompanied Herbert Hoover on mission to Europe

1918. Treas. and gen. mgr. U. S. Sugar Equilization Bd. 1918-19. Director Northwestern Nat. Bank, Northwest Bancorp., Eastman Kodak Co., Pullman Co., and A.T.&T. Regent Univ. Minn. Trustee Minneapolis Soc. Fine Arts, Carnegie Inst., Dunwoody Inst. of Minneapolis.

THE eminent essayist Dr. Oscar W. Firkins once observed that man was chosen among the animals to lead the march of civilization, not because of any physical prowess, but because of his innate curiosity and the fact that civilization was merely another tree to climb.

Man's curiosity is insatiable, his ingenuity under the force of necessity unlimited.

But there is an Achilles heel to this nature. As his bodily wants are filled, man tends to be slothful, physically and mentally, to slumber on the bed of past achievement. If a thing, once accomplished, serves its purpose, why change? Happily, there are those among his kind with a restless spirit not lulled to indolence by the sweet satiety of the status quo. These break through the gloomy shadows of dead men's thinking to scale new heights from which to view the future, seeking new paths and byways to a dynamic, continuing progress.

This spirit of restlessness, the very essence of life, is more potent than any combination of the physical sciences. It is not content with today. Its thoughts fly toward tomorrow and succeeding days in terms of the new and better. It surmounts one problem, only to engage another. Never "good enough," but "better!"

The result is to jar the multitudes out of apathy, to shake the mothballs from men's minds and unfurl the musty fabric to the forward moving breeze. Thus, men are goaded on to realize new benefits from added labors. Day by day, the surrounding masses are lifted to higher standards of living and enjoyment.

This force of the restless spirit, of the power of imagination, and of the rewards that translate both into forward movement, is found in the progress of research and those engaged in it.

To paraphrase Mr. Churchill, "never did so few bear so many forward with them," for their power seems so disproportionate to the load they carry.

Research is as unbounded as the universe, and yet as accountable as the measured mile. One can review ten years or a thousand and marvel at the progress made. Yet there is no gauge or metric system, no scientific or magical sounding device, with which to fathom the degree of betterment that lies ahead.

But this we do know. The research of the future will be distilled from those same ripe vines of the daring spirit and the imaginative minds that have nurtured civilization

(Continued on page 47)

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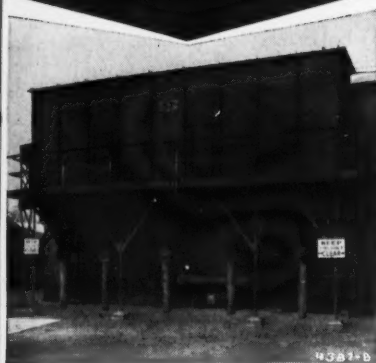
THE INTERNATIONAL NICKEL COMPANY, INC.
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When inquiring check CP 1507 on handy form, pgs. 2-3

CHEMICAL PROCESSING

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CHEMICAL PROCESSING

(CHEMICAL PROCESSING PREVIEW)

The News Magazine of Processing
Developments and Control

VOL. 13

NOVEMBER, 1950

NO. 11

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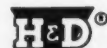


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this corrugated "safety" box

Promotes careful handling... identifies contents... simplifies transportation, storage, installation... speeds up order filling. Strongly printed in vivid red and blue on buff-colored, linen-finish corrugated board, its message of caution is unmistakable—yet the design reflects product quality. For better package action—increased protection, improved appearance, more "sell" and lowered costs, consult Hinde & Dauch, Executive Offices, 5003 Decatur Street, Sandusky, Ohio.



Send for Booklet "Pack to Attract," a Valuable Portfolio of Successful Merchandising Ideas from the H & D Package Laboratory.

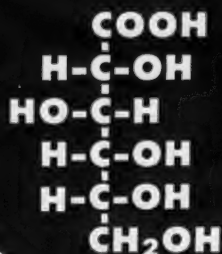


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When inquiring check CP 1509 on handy form, pgs. 2-3

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PROPERTIES and USES

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Appearance—Yellowish liquid

Specific Gravity of Solution @ 25°C

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Solubility in Organic Solvents—Low

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assimilated, forms soluble

salts; non-tendering to fabrics.

A sequestering agent and acid for—

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Pfizer Gluconic Acid Technical is available as a light yellow 50% aqueous solution in 5, 25 and 50 lb. bottles, 100-lb. carboys and 575 lb. drums. Its companion product, Pfizer Glucono-Delta-Lactone, is available as a white crystalline powder in 1 and 5 lb. canisters, 25, 50, 100 and 250 lb. drums. Write today for further information and samples of these non-toxic, non-corrosive mono-carboxylic compounds to Technical Service Department, Chas. Pfizer & Co., Inc., 630 Flushing Avenue, Brooklyn 6, N. Y.; 425 North Michigan Avenue, Chicago 11, Ill.; 605 Third Street, San Francisco 7, Calif.



PFIZER

Manufacturing Chemists for Over 100 Years

When inquiring check CP 1510 on handy form, pgs. 2-3

HIGHLIGHTS

★ Instrumentation of Spray Drying Installation Assures Efficient Operation, Quality Product . . . Interlocking controls use inlet and outlet air temperatures as means of maintaining temperature differential across drying chamber . . .

★ Automatic Batching of Fluids Speeds Production and Prevents Errors . . . Pulp and paper company employs control system for regulating charges to digester . . .

★ Four Primary Plasticizers for Cellulose Resins Are Secondary Plasticizers for PVC Resins . . . Liquid materials impart impact strength, moisture resistance, dimensional stability, low-temperature flexibility . . .

★ Bifunctional Intermediate Yields Wide Variety of End Products . . . Dimethyl chloroacetal good source for chloroacetaldehyde; reacts like diethyl chloro- and bromoacetal . . .

★ Lab Data Compare Drying Rates and Hardness of Polyhydric Alcohol Ester Films . . . Indicate that TMC with five hydroxyl groups, has good possibilities in making lacquers, varnishes . . .

★ Sets-up 3 Times Faster Than Conventional Seal Compounds . . . Lessens tendency for gases and liquids to push through threaded joints and gasket surfaces . . .

★ Seals Bare Wire Thermocouples in Vessels That Are Under Pressure, Vacuum . . . Gland assembly requires only sliding insulators in place, adding talc, and tightening cap . . .

★ Measure of Gas Pressure Is Independent of Gas Composition . . . Micromanometer accurately measures gas pressures in the 0-150 micron range . . .

★ Throws Bulk Materials Into Storage Piles at Rate of 50 Tons per Hour . . . Mobile unit adjusts to direct stream over radius of 50' and build piles to 20' heights . . .

★ If Explosion Occurs in Oven, Blowout Panel Safely Relieves Pressure . . . Electric unit for laboratory drying being offered in three sizes ranging from 2 to 20 cu ft capacity . . .

★ Can't Remove Plugs from Electrical Receptacle While Current Flows . . . Flip of safety lever breaks circuit, allows removal of plugs . . .

★ Bond Glass Fibers with Resin; Form Inexpensive Non-metallic Pipe for Process Service . . . Handles dilute and strong acids; may replace steel, lead for handling corrosives . . .

CHEMICAL PROCESSING NOV

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PETROLEUM	Solvent extraction Preparation of amides for refining lubricating oil Preparation of complex salt with CuCl for recovery of diolefins	PHARMA-CEUTICALS	Intermediate for medicinals Preparation of vitamin derivatives
PHARMA-CEUTICALS	Intermediate for medicinals	PLASTICS	Preparation of amides (plasticizers) Synthesis of resins for coatings
PHOTOGRAPHIC	Synthesis of photographic chemicals	RUBBER	Synthesis of vulcanization accelerators Stabilizer for latex
PLASTICS	Condensing agent and intermediate for resins Preparation of amides (plasticizers)	SOLVENT	Selective solvent for petroleum For wide range of organic compounds
RUBBER	Synthesis of vulcanization accelerators Stabilizer for latex	STABILIZER	For rubber latex
SOLVENT	Selective solvent for petroleum For wide range of organic compounds	TEXTILES	Synthesis of dyestuffs Synthesis of surface-active agents Synthesis of sizing compounds
STABILIZER	For rubber latex		
TEXTILES	Synthesis of dyestuffs Synthesis of surface-active agents Synthesis of sizing compounds		

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Isopropylamines

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123 S. Broad St., Philadelphia

When inquiring check CP 1511 on handy form, pgs. 2-3

Instrumentation of Spray Drying Installation Assures Efficient Operation, Quality Product

Interlocking controls use inlet and outlet air temperatures as means of maintaining temperature differential across drying chamber

PROBLEM: Unless the process variables in spray drying are closely controlled and compensated for, efficiency will be lower than it should be, and the final product will not be consistent in quality. In many cases, insufficiently dried materials will tend to deteriorate in storage, while over-dried and over-heated materials suffer general loss in quality.

Solution: A typical installation of an instrumented Swenson Evaporator Co. spray drying unit is shown in Figure 1. With this set-up, the operator can 1) control final product moisture through control of dryer outlet temperature, 2) regulate the pressure and volume of spray, and 3) control temperature of dryer.

The drying chamber temperature is maintained by an interlocking control system composed of two ElectroniK wide-band proportional temperature controllers, TRC-1 and TRC-2 (Figure 2), and a diaphragm motor control valve. The system is designed so that the outlet air temperature controller, TRC-1, pneumatically sets the index of TRC-2, the inlet air temperature controller. The second instrument positions the diaphragm motor control valve on the fuel line.

With this system, the inlet air temperature controller corrects for all fluctuations and deviations involved in heating the air to the temperature required to maintain the differential across the drying chamber.

Changes in temperature and humidity of atmospheric air, and changes in temperature and pressure of the fuel are two examples of these fluctuations. The outlet temperature controller compensates for the process characteristics of the drying chamber. Through the interlocking arrangement, maintenance at the desired point of heat demand of the drying chamber is assured.

Variables in the balance of the system are measured or maintained by pressure type thermometer recorders, and one controller.

A gauge (not shown in Figure 1) records the pressure exerted by the displacement pump at the atomizing nozzle of the spray dryer. A 3-pen recording thermometer, RT-1, records the temperatures in the inlet and outlet air ducts, and in the bottom of the dryer cone. The

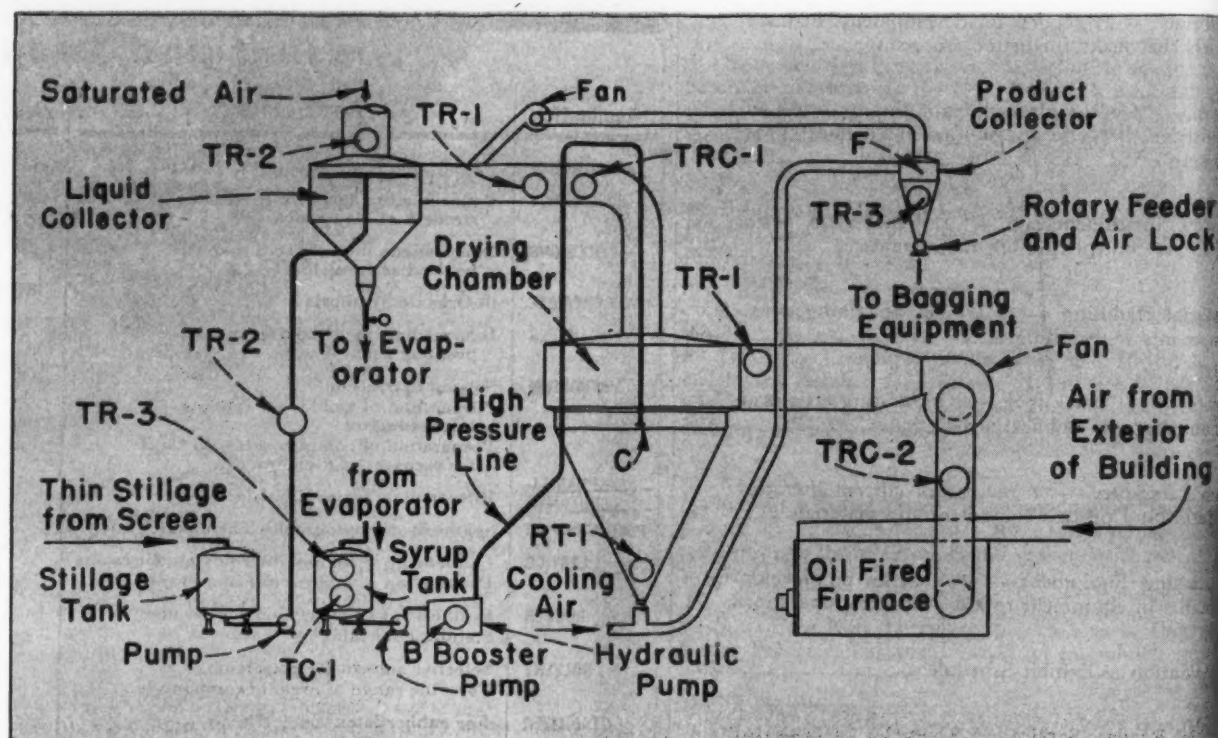


Figure 1—Flow diagram of an instrumented spray drying installation

Figure 2—ElectroniK potentiometer of the type used for controlling temperature variables in drying chamber



first two measurements of the thermometer are used as checks to assure that the ElectroniK controllers are operating properly. The last enables the operator to determine when the drying chamber has reached operating temperature during start-up.

One bulb of a 2-pen thermometer, TR-2, is mounted in the air duct exit from the collector; the other is in the thin stillage line. The 2-pen recorder, TR-3, records temperatures in the syrup tank and product collector. Finally, a controller, TC-1, is used to maintain constant feed temperature.

Results: Properly instrumented system assures very close control of the drying operation, and rapid response to variations in operating conditions. As a result, the final product is consistently of a high quality, and operating efficiency is always at the optimum.

Both the control system and the spray dryer are carefully engineered, each to the other. The range of materials that can be dried in this manner includes resins, powdered soaps and detergents and other chemicals, as well

as a variety of minerals and foods. Dryer design may vary with the material being handled.

Special designs may provide for cooling air to enter around chamber, closed systems for recovery of solvents, and many other variations to suit the applications.

Source: Brown Instruments Division, Minneapolis-Honeywell Regulator Co., Dept. CP, Wayne & Roberts Aves., Philadelphia 44, Pa. . . . or for more information check CP 1512 on handy form, pages 2 and 3.

Filtered lube, cooling oils run 15 months without being changed . . .

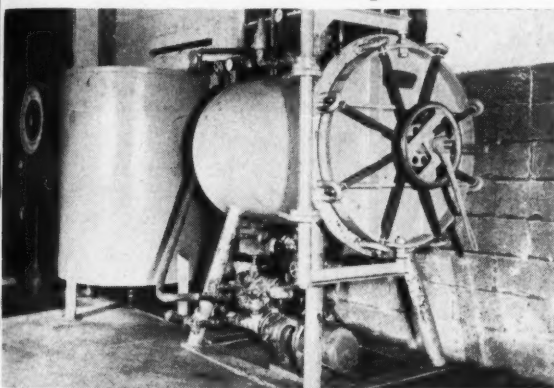
wire drawing machines, rolling mills don't have to be shut-down for cleaning; wear eliminated

Problem: Oils used to lubricate and cool the dies in wire drawing machines, and the roll and bearing assemblies of cold-rolling machines at Wilbur B. Driver Co., Newark, N. J., accumulated flakes of metals and other impurities. This necessitated frequent shut-downs of machinery for cleaning, and also frequent oil changes.

Furthermore, in wire drawing, tungsten carbide formed and was picked up by the oil; subsequent lubrication and cooling with this oil caused extensive die wear and expensive replacement. Eighty percent of the impurities in the oil were .0004" max in their longest dimension.

When strip was rolled, impure oil caused wear in the bearings and rolls of these machines. In both cases, finish and cleanliness of the product was affected.

Solution: In June, 1949, two Hercules pressure leaf filters were installed, one for filtering the oil from the



Pressure leaf filter provides a continuous stream of filtered lubricating oil to roll and bearing assemblies of strip rolling mill located on other side of dividing wall.

battery of wire drawing machines, and the other for the battery of strip rolling machines. The lubrication system is completely enclosed — oil is taken as it comes from the production machines, completely cleaned, and returned to the machines automatically.

Results: By August, 1950, fifteen months had passed, during which time there had been no stoppage in production for cleaning either battery of machines, nor had there been any oil changes. Particles as fine as .0004" and smaller are removed from the oil, eliminating the wear factor. Finish and cleanliness of final product has been substantially improved, production rates have been upped, and costs have been slashed.

Source: Pressure leaf filters in this application are made by Hercules Filter Corp., Dept. CP, 204 21st Ave., Paterson, N. J. . . . or for more information check CP 1513 on handy form, pages 2 and 3.

NOVEMBER, 1950

Alkyl Phenol C-9

Jefferson's new chemical *intermediate*
stabilizer
plasticizer

Properties of Jefferson Alkyl Phenol C-9 indicate a wide range of application as

1. an intermediate for non-ionic detergents
2. a stabilizer for ethyl cellulose
3. a plasticizer for cellulose esters
4. an intermediate for other plasticizers
5. a starting material for production of lubricating oil additives and rubber chemicals
6. an antioxidant

A typical
description of
Jefferson
Alkyl Phenol
C-9 is:

Specific Gravity, 20/4°C	0.949
Hydroxyl Number	255
Color, Pt-Co Scale	200
Refractive Index, 20°C	1.5140
Flash Point (TOC), °F	300
Distillation Range, °C (Modified ASTM)	
IBP	290.0
5 ml.	293.0
50 ml.	295.0
95 ml.	296.5
EP	298.0

You may secure technical information and experimental samples for research and product development by writing (on your company letterhead, please) to our Market Development Division, Department D.



Compressor piping frames this picture of a Jefferson ethylene unit (purification section) at Port Neches, Texas.

Jefferson Chemical Company, Inc.

711 FIFTH AVENUE, NEW YORK 22, N. Y.



ESSENTIAL CHEMICALS FROM HYDROCARBON SOURCES

ETHYLENE OXIDE
DIETHYLENE GLYCOL
ETHYLENE DICHLORIDE
ETHYLENE GLYCOL

Briefs

From recent literature

Non-volatile solvents which enable insecticidal resins and cyclohexenone synergists for such resins to be used together in an effective state of solution may be made from sodium salts of alkyl phenols and 2,2'-dichlorodiethylether.

High melting synthetic waxes have been prepared by the reaction of long chain alkyl phenols with 1,4-dichlorobutane. Such waxes are compatible with other waxes, such as beeswax and petroleum waxes, and may be used in combination with them to raise their melting points.

Surface active agents made from alkyl phenols and ethylene oxide tend to be viscous and can be more easily purified in dilute aqueous solution. The agent can be recovered as a concentrated solution by heating the dilute solution to cause a phase separation. The composition of the phases is related to heating temperature, which is usually about 100° C. Use of the aqueous phase as the diluent for additional unpurified product makes possible recoveries of nearly 100%.

Lubricating greases stabilized against oxidation as well as oil separation and structural breakdown are obtained by the addition of a small amount of condensation product of formaldehyde and higher fatty acid esters of an alkyl phenol with a side chain of 4 to 12 carbon atoms.

These developments are abstracted from recent publications or U. S. patents. The uses may suggest other applications of Jefferson Alkyl Phenol C-9 in your products or processes.

When inquiring check CP 1514 on handy form, pgs. 2-3



WITH **BH** BLACK

**ROCKWOOL
BLANKET
INSULATION**

interlocking fibers
moisture-resistant

send for
quick
facts

Please send me complete information on
B-H Blanket Insulation

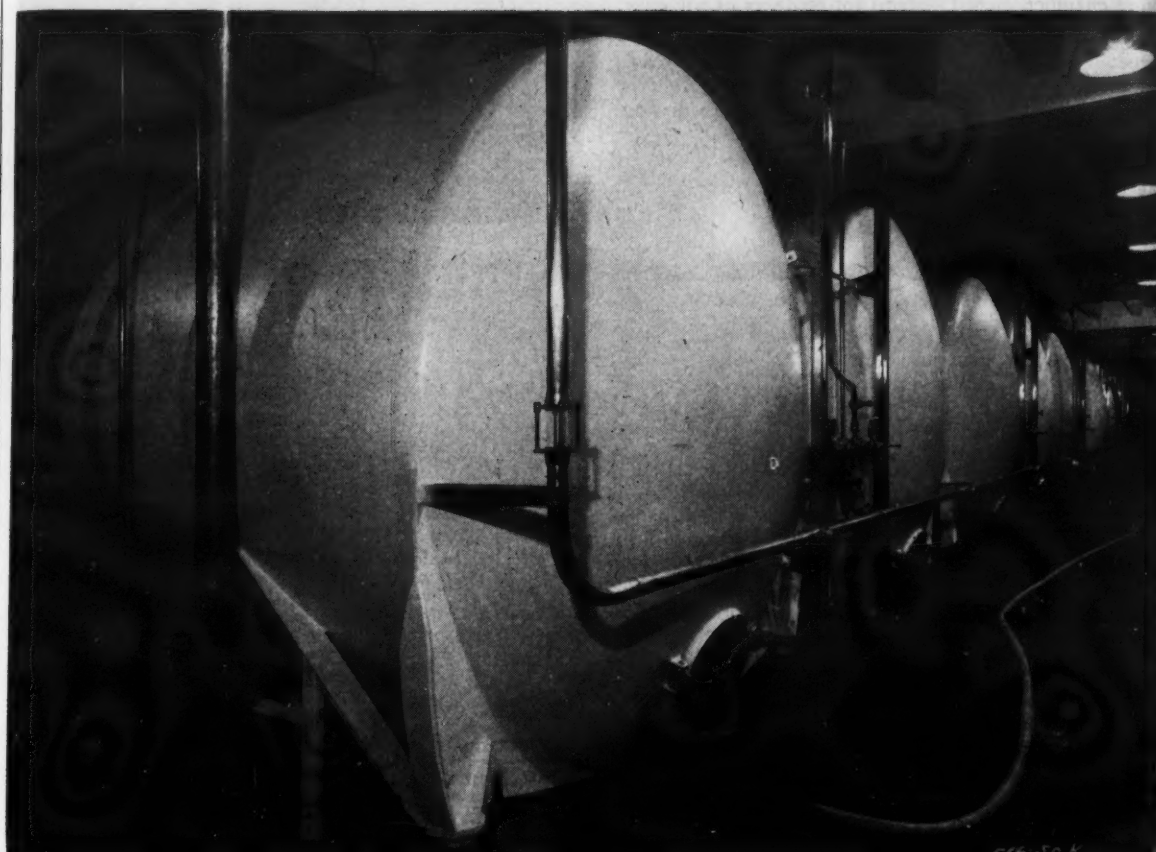
NAME _____
POSITION _____
FIRM _____
ADDRESS _____

NEW TO YOU?

BALDWIN-HILL COMPANY
882 BRUENIG AVE. • TRENTON-2, N. J.

When inquiring check CP 1515 on handy form, pgs. 2-3

Page 10



Paint on walls, floors and tanks resists low temperatures and dampness

*Paints Based on High Styrene-butadiene
Copolymer Resist Corrosion, Fungus*

Used in various formulations on walls,
floors and equipment of brewery addition

PROBLEM: Breweries present an unusual combination of high humidity, mildew and fungus growths, heat and cold, marring, abrasion as well as the action of yeasts, beer, soaps, detergents, alkalies, and other chemicals which impose service conditions too severe for conventional paints. Besides service conditions, there are the rigid requirements of cleanliness and sanitation to be considered.

Thus, when the Standard Brewing Company of Cleveland, Ohio, was planning design and construction of a large plant addition, it was vitally concerned with in-

dustrial finishes. A review was made of past performances of a large number of paints. From this experience the brewery was able to determine quite accurately the desired characteristics of paints to be used. Prime requisite was excellent resistance to water and alkalies. Additional requirements were adhesion to concrete, metal, and wood; absence of taste, odor, and toxicity; and easy maintenance.

Solution: In selecting finishes it was found that paints based on "Pliolite S-5", a high styrene-butadiene copolymer, offered performance data that paralleled requirements imposed by operating conditions. These paints were easily applied by brushing or spraying. First applications were made on the walls and ceilings in all areas, exclusive of the bottling and canning area, and the Government cellar. In those sections only the

CHEMICAL PROCESSING

*New Solutions
OF PROCESSING PROBLEMS*

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ceilings were painted, since the walls and floor were surfaced with ceramic tile. A white semi-gloss formulation was used on the walls and ceilings as soon after their construction as possible. In many cases, this meant painting concrete about one week after forms were removed. The need for increased production capacity eliminated the possibility of any normal aging period. Alkali resistance of this paint embodying high styrene-butadiene copolymer permitted rapid painting without danger of saponification and subsequent deterioration of the paint film.

In the Government cellar, 11 storage tanks were brush-painted with a white high gloss enamel. Copper piping and tubing were coated with a clear solution. Painting in the cellar had to be carried out at a temperature of 34°F in a damp atmosphere.

In general, equipment to be painted included bottle washers, can and bottle filling machines, as well as capping machines, pasteurizers, labeling machines, and crating machines. Operating conditions in each case involved one or more of the following factors: high temperature, moisture, greases, oils, soap and water.

In all, some 2,000 gallons of paints and a period of two and one-half months were required to paint the new plant and its equipment.

Results: Finishes resist a wide variety and combinations of conditions that are normally extremely damaging. They possess good initial and permanent adherence to concrete, even when practically uncured. They were successfully applied at near freezing temperatures and under extremely damp atmospheric conditions, yet resist these conditions after application. They are not adversely affected by such solutions as sodium hydroxide or tri-sodium phosphate. Beer, soap, and oil was also resisted effectively. Finishes do not support fungus growths, and in addition are odorless, tasteless and non-toxic. Where desired, they can exhibit high gloss. Paints are fast drying, easily applied by brush or spray, and do not settle-hard or skin-over in cans.

Source: Paints used in the various applications described here are known as "Rhinoskin", and are made by The Gibbs Paint Mfg. Co. The high styrene-butadiene copolymer, known as Pliolite S-5 is made by the Chemical Division of The Goodyear Tire & Rubber Company, Dept. CP, Akron, Ohio . . . or for more information check CP 1516 on handy form, pages 2 & 3.

Liquid automatically batched by metering system

Light or heavy liquids are automatically batched to an accuracy of within 1% by metering system described in 8-page bulletin. System is adaptable to practically every liquid measuring problem, regardless of size or viscosity. System consists of 3 parts: control unit, meter, and valve. These components can be grouped or placed remotely, as desired.

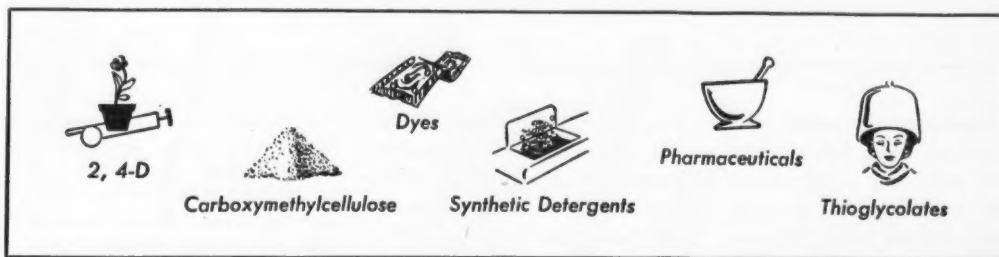
In operation, indicator hands on control unit are set to desired measurement. Starting switch is operated. Valve opens, starting flow of liquid through meter. Meter in turn drives control unit, which accurately determines amount of liquid flow. When hands reach zero, preset delivery is complete; valve automatically closes. Hands return to previous setting, ready for next batch. If desired, system can be operated by timing device.

Bulletin FL-49 is issued by Hetherington & Berner Inc., Dept. CP, 750 Kentucky Ave., Indianapolis 7, Ind. When inquiring specify CP 1517 on handy form, pages 2 and 3.

NOVEMBER, 1950

HOOKE MONOCHLOROACETIC ACID

To Make Today's Products Better



Versatile Monochloroacetic Acid is aptly called "today's intermediate" because so many currently important products can be made from it.

That's why your choice of a source for this important chemical should be made carefully. As a major producer of Chlorine and chlorine products, Hooker has a fund of technical experience of great value in the production and the use of such products as this. In addition Hooker produces Monochloroacetic Acid in a new plant especially designed for the purpose. As a result, the Hooker product is of high quality, dependably uniform, and available in quantities that match your production needs.

Listed below are some of the characteristics of Hooker Monochloroacetic Acid. Technical Data Sheet 752-B gives more complete listing of physical and chemical properties. It will be sent you upon request made on your company letterhead.

MONOCHLOROACETIC ACID

DESCRIPTION: White crystalline material with a strong sweetish odor. Corrosive to the skin. Very soluble in water and benzene; soluble in most organic solvents.

Synonyms	Chloroacetic Acid, Chloroethanoic Acid	Boiling Point	189°C
Formula	CH ₂ ClCOOH	Solubility	
Molecular Weight	94.5	Water	Very soluble
Freezing Point	61.6°C	Benzene	Very soluble
		Other organic solvents	Generally soluble

USES: Intermediate in manufacture of carboxymethylcellulose, 2,4-dichlorophenoxyacetic acid, cyanoacetate, indigoid and thioindigoid dyes, ammonium thioglycolate, thioglycolic acid, glycine and other chemicals of commercial importance. It has been suggested as a preservative alone or in connection with other compounds for hides, skins, etc.

From the Salt of the Earth

HOOKE ELECTROCHEMICAL COMPANY

15 FORTY-SEVENTH ST., NIAGARA FALLS, N. Y.
NEW YORK, N. Y. • WILMINGTON, CALIF. • TACOMA, WASH.



10-1375

BENZOIC ACID • CHLOROTOLUENE • SODIUM BENZOATE • CAUSTIC SODA • MURIATIC ACID • PARADICHLOROBENZENE • CHLORINE

When inquiring check CP 1518 on handy form, pgs. 2-3

Airco Nitrogen gives positive Protection against Air Damage

For deaerating, processing, storing and packaging fats and oils, in the packaging of dehydrated foods, and to provide an inert atmosphere, use Airco Nitrogen. It gives positive protection to practically any material susceptible to oxidation and corrosion by air.

For more than a quarter century Airco has been one of the world's leading producers and purifiers of nitrogen — as well as other atmospheric gases: oxy-

gen, argon, helium, neon, krypton, and xenon . . . all known throughout industry for their high purity, unvarying uniformity and dependable qualities. This uniformity and adherence to specifications of Airco Nitrogen are definite factors contributing to its satisfactory use.

To meet your requirements, Airco can supply nitrogen of specific types. Airco Nitrogen is supplied in 224 cu. ft. cylinders, or, if your plant is equipped with an internal pipeline, delivery in bulk may be made in Airco trailers. For further information write your nearest Airco office.

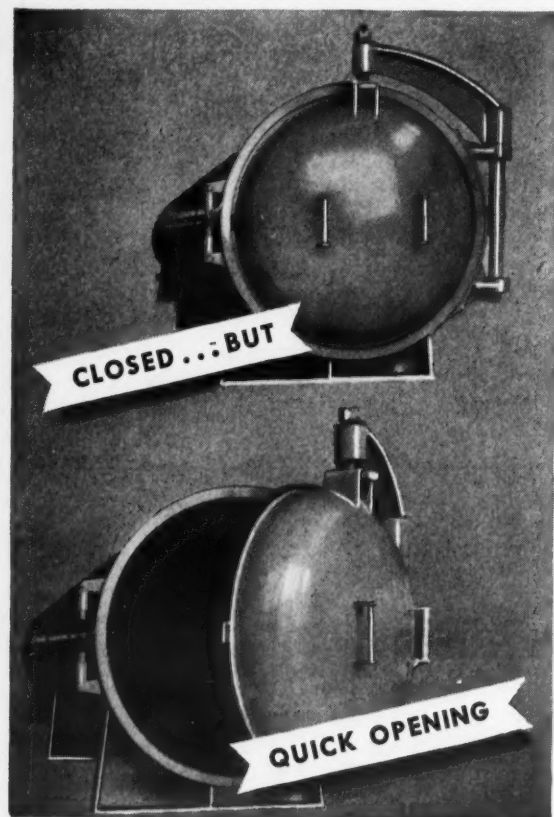


AIR REDUCTION

Offices in All Principal Cities

HEADQUARTERS FOR OXYGEN, ACETYLENE AND OTHER GASES...CARBIDE...GAS WELDING AND CUTTING APPARATUS AND SUPPLIES...ARC WELDERS, ELECTRODES AND ACCESSORIES

When inquiring check CP 1519 on handy form, pgs. 2-3



Look into this in a Hurry!

Blaw-Knox Quick Opening Doors for curing chambers, vulcanizers, and similar equipment, are *quick—tight—boltless*. In diameters up to 10 ft., they may be used on pressures up to 250 psi. They are boltless and rim-locking.

This is only one of a long line of Blaw-Knox standard equipment items for the Process Industries. See Blaw-Knox Bulletin No. 2307.

PROCESS EQUIPMENT DEPARTMENT

BLAW-KNOX

DIVISION OF BLAW-KNOX COMPANY

2090 FARMERS BANK BLDG., PITTSBURGH 22, PA.

Other Offices in Principal Cities

When inquiring check CP 1520 on handy form, pgs. 2-3

NEW SOLUTIONS of processing problems

Emergency power plants have automatic on-off control

Protection from loss and damage incurred by electric power failure is afforded by emergency power plants described in 4-page folder. These units are driven by gasoline engines, automatically start when commercial power is cut off and stop when power service is resumed. Sizes range from 1000 to 75,000 watts in standard voltages, cycles, and phases. Automatic controls are available in ratings from 10 to 200 amps.

"When Power's Off — You're Safe!" is issued by D. W. Onan & Sons Inc., Dept. CP, Minneapolis 5, Minn. When inquiring specify CP 1521 on handy form, pages 2 and 3.

Automatic batching of fluids speeds production and prevents errors . . .

pulp and paper company employs control system for regulating charges to digester

Problem: Whenever a fluid batch charge was sent to a digester in the plant of a large Florida pulp and paper company, the charge was first pumped from a large storage tank to a measuring tank. After this tank was filled to the proper level, the charge was pumped from it to the digester.

The company was not satisfied with this method because 1) it took too long and 2) it offered too much chance of operator error in measurement of the intermediate batching tank.

Solution: An automatic batching system, as illustrated in Figure 1, has replaced the older system. With this arrangement, the pump is actuated by pushbutton and

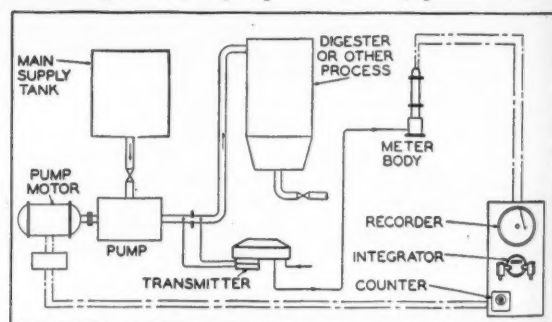


Figure 1—Method of controlling addition of fluid to digester

is automatically kicked out when a preset volume of fluid has been transferred from the supply tank to the digester.

Figure 2 is a simplified diagram of the control device. An electric meter body measures flow and supplies a proportional current to the watt-hour type of continuous electric integrator. Speed of rotation of the integrator shaft, on which a multiface mirror is mounted, is a direct measure of the rate of flow, and each revolution corresponds to a definite quantity of flow. Current supplied by the meter body is also used to actuate a flow recorder which is part of the unit.

By counting the number of revolutions of the integrator shaft, any desired quantity or batch may be accurately established. This counting is done by a photoelectric cell that picks up the number of reflections of a light source from the rotating multiface mirror.

As soon as the desired batch — corresponding to the predetermined setting of an electric counter — has been integrated, the pump circuit is automatically de-energized by

CHEMICAL PROCESSING

NEW SOLUTIONS of processing problems

the counter, after which the counter automatically resets itself.

The counter has an inside and outside scale on its dial. The first is calibrated in single units, and the last in units of ten. A third pointer on the dial travels from the batch setting down to zero while the batch is being delivered. This aids the operator in telling how much of a batch has been delivered at any given time, and how much is left to go. The standard Republic type integrator shows the total quantity of fluid in all batches used.

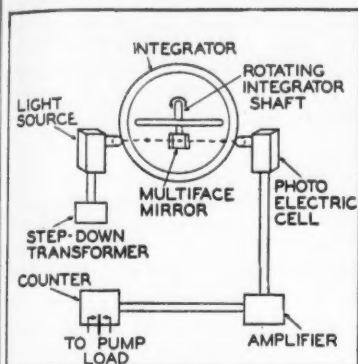


Figure 2—Schematic of batch control

The electric counter will register up to 150 counts per minute. Maximum speed of the integrator shaft, corresponding to maximum flow, is 25 rpm. For a given calibration of the integrator, the range of batch control is varied by changing the number of faces (from one to six) of the revolving mirror.

In some applications it is desirable to connect an electric timer with the batch integrator to automatically energize the pump circuit and inject a predetermined batch into the process at desired time intervals.

For proportioning control, the unit may be used with a positive stroke pump such as the Milton Roy air pump. In this type of arrangement, the integrator control meters the mixing fluid into the line in exact desired proportion to the rate of flow through the line. Each additional increment of flow calls for one stroke of the pump, which sends a fixed amount of mixing fluid into the line or process.

Results: The intermediate step of measurement in a batching tank is eliminated, releasing this tank for other use, and cutting out one pumping operation. Since the batch measurement is performed mechanically, there is no possibility of operator error in determining batch size. Operation is faster.

Source: The Batch Integrator is a development of Republic Flow Meters Co., Dept. CP, 2240 Diversey Pkwy., Chicago 47, Ill. . . . or for more information check CP 1522 on handy form, pages 2 and 3.

Lists processing equipment for oils and fats

Four-page bulletin describes services and equipment for processors of oils, fats, and other organics. Bulletin points out some of the many processing systems and operations in the hydrogenation and organic synthesis fields for which maker provides both equipment and complete engineering planning and service. Included are such operations as deodorization, hydrogenation, fatty acid distillation, bleaching, fat splitting, neutralization, and winterizing.

"New Profits from Oils and Fats" is issued by The Patterson Foundry & Machine Co., Dept. CP, East Liverpool, Ohio. When inquiring specify CP 1523 on handy form, pages 2 and 3.

NOVEMBER, 1950

CHROMALOX

STRIP HEATERS

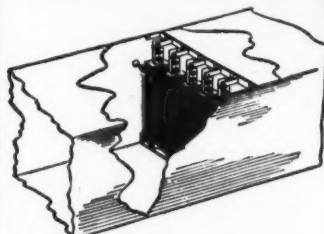
solve hundreds of heating problems



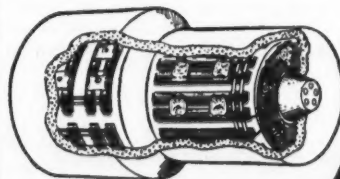
In straight lengths, curves, rings, segments and with fins, 4 1/2" to 95" lengths, 3/8" to 2 3/8" width. Iron, steel and alloy sheaths.

efficient • dependable • low cost
electric
heat for Processes and products

TYPICAL APPLICATIONS



Chromalox Electric Fin-Strip Heaters mounted in air ducts.



Plastic extrusion barrel with Chromalox Ring, Straight and Curved Strip Heaters.

Easy to Install

CHROMALOX Electric Strip Heaters give clean, dependable and accurately controlled heat. They are widely used in platens, dies, kettles, tanks, ovens, air ducts and other applications requiring accurate temperature control and around-the-clock service.

If you are a user of heat, either in processes or products, you can get many valuable application ideas by sending for the booklet below. On-the-job engineering assistance, without obligation.

CHROMALOX

Electric Heat for Modern Industry



WANT MORE FACTS?

Send for this booklet of application ideas you can adapt for use in your plant. Write for your free copy today.

EDWIN L. WIEGAND COMPANY.

7517 THOMAS BLVD. • PITTSBURGH 8, PA

When inquiring check CP 1524 on handy form, pgs. 2-3



This lead pipe was exposed to Dilute HNO_3 for 2 weeks.

Pipe corroded half-way through, unsuitable for further service.



This porcelain elbow was dropped 6 feet onto concrete.

Damage complete.



This high-silicon iron elbow was subjected to thermal shock.



This glass-lined steel elbow was exposed to 10% HF for 1 day.

Glass lining completely removed from fitting.



This plastic-lined steel elbow was heated at 250°F. for 1 day.

Short exposure to heat produced breakdown of the lining.



This plastic elbow discolored ethyl acetate.

This "KARBATE" impervious graphite elbow was:

1. Exposed to 30% HNO_3 for 2 weeks
2. Dropped 6 feet onto concrete
3. Subjected to thermal shock
4. Exposed to 10% HF for 1 day
5. Heated at 250°F. for 1 day . . . and
6. Did not discolor ethyl acetate

"KARBATE" IMPERVIOUS GRAPHITE WITHSTANDS SEVERE OPERATING CONDITIONS, NOT FOR DAYS OR WEEKS, BUT FOR YEARS.

LET THE RECORD SPEAK!

MORE THAN DOUBLE THE USABLE LIGHT!

The biggest news since the invention of flashlights—the brand new, leak-proof "Eveready" No. 1050 flashlight battery—gives you more than double the usable brilliant white light for critical uses than any other flashlight battery we have ever made. NO METAL CAN TO LEAK OR CORRODE.



MANY corrosion-resistant materials are suitable for specific operations, BUT can they handle UNFORESEEN changes in operating conditions? The six materials shown above were subjected to conditions outside their range of application. They failed. But "Karbate" impervious graphite took all these conditions, and will continue to take them, not for days or weeks, but for years.

Your best bet to avoid scrapping equipment due to a process change is to specify "Karbate" impervious graphite.

The terms "Karbate" and "Eveready" are registered trade-marks of

NATIONAL CARBON DIVISION
UNION CARBIDE AND CARBON CORPORATION
30 East 42nd Street, New York 17, N. Y.

District Sales Offices: Atlanta, Chicago, Dallas, Kansas City, New York, Pittsburgh, San Francisco
Foreign Department: New York, U.S.A.

When inquiring check CP 1525 on handy form, pgs. 2-3

NEW SOLUTIONS of processing problems

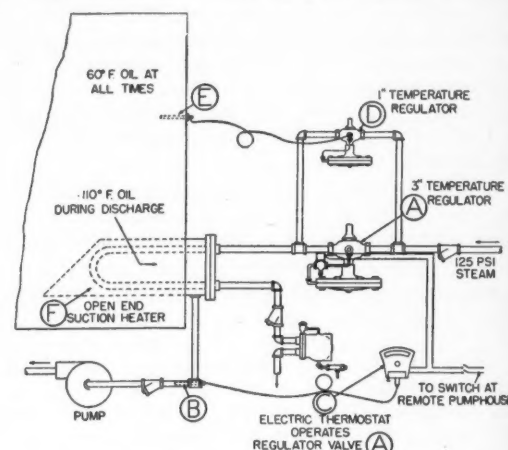
Maintaining optimum temp of lube oil in storage aids discharge . . .

regulation of steam fed to tank heaters promotes free-flow of oil from outdoor storage tanks

Problem: The Shell Oil Company at Sewaren, N. J. installed 13 outdoor lube oil storage tanks, each equipped with an open-end type suction steam heater. A system for regulating the temperature of oil within these tanks was essential, both during discharge and storage.

It was required that all stored oil be held at 60°, to prevent it from clinging to the tank walls when the time came to empty the tank. To permit free flow of oil during discharge, particularly in cold winter weather, oil temperature at the discharge pump inlet had to be 110°F.

Solution: To maintain the required oil temperature during discharge, a 3" regulator valve was installed at A (see illustration), controlled by the temperature-sensitive



Temperature regulation system for oil storage tanks

bulb at B. During discharge of oil, this valve opens wide to supply the suction heater F with sufficient steam to raise the temperature of the oil passing through its coils to 110°F.

When the time comes to discharge oil, the tank selector switch is manually closed in a distant control house to actuate the electric, indicating thermostat C. As long as the oil temperature at bulb B is lower than 110°F, this thermostat holds open a solenoid pilot valve, which is part of regulator A. The large valve at A is thus opened wide to pass the oil stream to heater F.

Temperature regulator A has a single-seated valve which can change quickly from wide open to shut. It is operated by steam pressure on a large, metal diaphragm. Operation is possible due to the fact that the large diaphragm is actuated by the small solenoid pilot valve, and the fact that bulb B actuates only this small pilot valve, regardless of the size of the main valve.

A 1" temperature regulator valve was installed at D, controlled by the temperature-sensitive bulb at E. During storage, this valve supplies sufficient steam to the open-end suction heater F to keep the lube oil at 60°F.

For more information on product at right, specify CP 1526 . . . see information request blank between pages 2-3.

CHEMICAL PROCESSING

Ladish Elbows



THE COMPLETE FITTINGS LINE
PRODUCED UNDER ONE ROOF...ONE RESPONSIBILITY

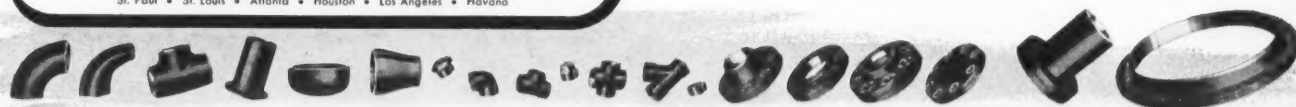
LADISH CO.

CUDAHY, WISCONSIN
MILWAUKEE SUBURB

DISTRICT OFFICES: New York • Buffalo • Pittsburgh • Philadelphia • Cleveland • Chicago
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...A Complete Size Range
Another Reason to Specify
Controlled Quality
SEAMLESS WELDING FITTINGS

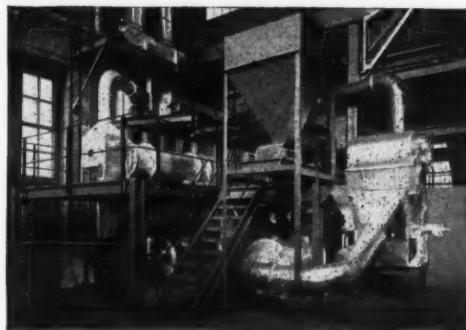
From the small fitting that weighs several ounces to the half-ton giant . . . whatever your fittings requirement, the Ladish line provides you with an unrestricted choice of sizes in a complete range of types, weights and materials. In addition, every fitting offers the added dependability assured by the high manufacturing and metallurgical standards of Ladish Controlled Quality.



YOUR MATERIAL



a test run in the LINK-BELT DRYER LABORATORY



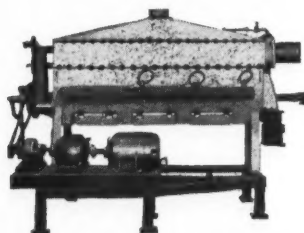
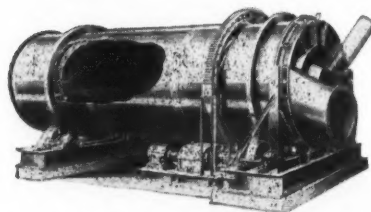
the proven performance you can duplicate in your plant

The Link-Belt Dryer Laboratory is fully equipped with full-scale dryers of every type for every drying, cooling or processing need. It is the wisest place to make your decisions as to the proper equipment for your plant. You can make decisions based upon observable performance on your own material.

A test run in cooperation with our research engineers can be arranged at your convenience. Simply write or phone your nearest Link-Belt Office or Plant. May we send you Catalogs Numbers 1911A and 2209?



LINK-BELT DRYERS • COOLERS • ROASTERS



LINK-BELT COMPANY Chicago 9, Indianapolis 6, Philadelphia 40, Atlanta, Houston 1, Minneapolis 5, San Francisco 24, 11.895
Los Angeles 33, Seattle 4, Toronto 8, Johannesburg. Offices in Principal Cities.

When inquiring check CP 1527 on handy form, pgs. 2-3

NEW SOLUTIONS of p

Construction and operation is the same as that described for self-contained pilot valve E.

Results: Lube oil is not overheated, both during discharge and without.

Source: Regulators and Inc., Dept. CP, 350 Fifth St. for more information on pages 2 and 3.

Protect quality of cause by nickel-plating drums inside and out . . .

prevents iron contamination, necessitates repainting drums.

Problem: In shipping (grade) for export, it has to be in molten form, into which solidifies on cooling. Degrades the quality of the material, which degrades the cause.

Southern Alkali Corp., Ltd. investigations to find a packaging solution to this difficulty. Painted drums presented a difficulty because they only a short time in storage.

Solution: Preliminary tests showed that nickel-plated steel for drum fabrication gave adequate protection for the material so as to maintain its grade quality. Outside of drums also painted need for frequent repainting was added.

Results: Normally with an unplated carbon steel drum, a red color on the surface, pick-up. By contrast, with nickel-plated, the cake has good, no discoloration. Obviously, the rayon grade quality. Plating also eliminated any difficulties in good condition.

Source: Southern Alkali Co. has patents pending on nickel-plated steel which forms drums.

Aluminum tubing has uses as instrument lines

Uses of aluminum tubing in instrument lines are disclosed in Factors which qualify tubing: light weight; single length; corrosion resistance; and

Pamphlet includes tables of operating pressures, conversion of thermal expansion for the of Alcoa Aluminum" is issued by Alcoa Aluminum Co., America, Dept. CP, Pittsburgh, Pa. Inquiries specify CP 1529 on handy form.

NOVEMBER, 1950

and operation of temperature regulator D that described above for A, except that its pilot valve is actuated directly by the bulb

ube oil is maintained at required temperature during discharge and storage — without and without waste of steam.

regulators are a product of Sarco Company, 350 Fifth Ave., New York 1, N. Y. . . . information check CP 1528 on handy form,

ity of caustic ing drums t . . .

iron contamination, discoloration; eliminating drum exteriors

n shipping anhydrous caustic soda (rayon sort, it has been general practice to pump form, into carbon steel drums in which it cooling. During this operation there is on pick-up from contact with the drums es the caustic to a considerable extent.

li Corp., Lake Charles, La., began investigating a packaging method that would overcome Painted exterior of the drums also pre- erty because they required refinishing after time in storage.

Preliminary tests indicated that nickel- or drum fabrication would provide ade- on for the steel and reduce iron con- as to maintain quality of the caustic. owed that use of thin nickel deposits on ms also provided protection that elimi- frequent refinishing when a lacquer coat-

ormally when caustic cake is removed ted carbon steel drum it has acquired a e surface, which shows an excessive iron on- trast, when nickel plated drums are has good, uniform natural color with no Obviously such caustic has retained its uality. Plating plus lacquer coating has any difficulty in maintaining drum ex- condition.

thern Alkali Corp., Lake Charles, La., nding on the nickel-plated drums. In- kel Co. nickel is used by Thomas Steel Warren, Ohio in producing the nickel- ich forms these containers.

ing has uses lines

um tubing for conveying air in instru- disclosed in 8-page, illustrated pamphlet. qualify tubing for this service include iple length to 1000'; ease of forming; ance; and lack of seams.

les tables of mechanical properties, burst- conversion factors, and coefficients of ion for this tubing. "Instrument Lines num" is issued by Aluminum Company of CP, Pittsburgh 19, Pa. When inquir- 1529 on handy form, pages 2 and 3.

How **B&W** INSULATING FIREBRICK Trim Processing Costs

Four key words explain how B&W Insulating Firebrick lower over-all costs in chemical and petroleum process furnaces:

SHORT — You can *shorten* installation time materially with B&W Insulating Firebrick because they can be cut, drilled or shaped on the job with ordinary woodworking tools.

LONG — B&W Insulating Firebrick are *long* lasting because of the exceptional refractory nature of their base ingredients and the high processing temperatures to which they are subjected during manufacturing.

HIGH — These lightweight brick have *high* insulating values . . . may be supported with ordinary carbon steel hangers. You don't have to use expensive, heat-resisting alloys.

LOW — These cost-cutting brick have the *lowest* heat storage of any insulating firebrick. Since B&W Insulating Firebrick cool off fast, they reduce down-time . . . make possible quick access to the furnace for inspection. They also reach operating temperature quickly, reducing cycle time and fuel bills.

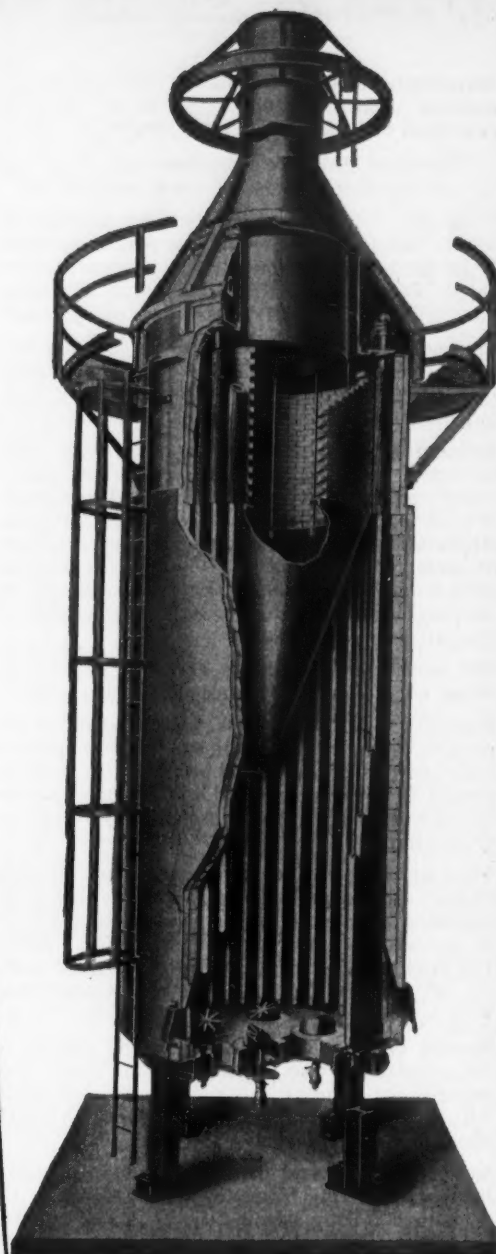
These are four sound reasons why process furnace builders and operators specify B&W Insulating Firebrick. Learn how these lightweight brick can help you save money. Your B&W representative will be glad to give you facts and figures.



Four Petro-Chem Iso-Flow Furnaces Installed in large southwestern oil refinery.



B&W REFRACTORIES PRODUCTS — B&W 80 Firebrick • B&W Junior Firebrick • B&W 80 Glass Tank Blocks • B&W Insulating Firebrick
B&W Refractory Castables, Plastics and Mortars • **OTHER B&W PRODUCTS** — Stationary & Marine Boilers and Component Equipment...
Chemical Recovery Units . . . Seamless & Welded Tubes . . . Pulverizers . . . Fuel Burning Equipment . . . Pressure Vessels . . . Alloy Castings



Sectional View of Petro-Chem Development Company Iso-Flow Furnace lined with B&W Insulating Firebrick.

BABCOCK & WILCOX

THE BABCOCK & WILCOX CO.
REFRACTORIES DIVISION
GENERAL OFFICES: 85 LIBERTY ST., NEW YORK & N.Y.
WORKS: AUGUSTA, GA.

R-389

When inquiring check CP 1530 on handy form, pgs. 2-3

**Metallizing of spindle shafts
assures uninterrupted
precision finishing . . .**

increases shaft life from few days to at least 16 mo; averages 25% of cost of replacement

Problem: It was necessary to keep split-bronze spindle bearings tight to prevent play in machine when finishing precision parts to very close tolerances. Under such extreme conditions, shafts frequently broke down after a few days of operation. Chrome-plating was tried as a remedy, but was found to be unsatisfactory. Company engineers then made their own shafts of a special tool steel, but these spindles lasted less than a month.

Solution: Worn shafts are metallized with Sprabond wire. In fact, not only is the metallizing technique applied for such salvage work, it is also used on shafts that are on new machines. Application is relatively simple: the part is cleaned or undercut; Sprabond wire is applied; and the surface is finish-ground. There is no danger of warping because negligible heat is generated in the part during spraying.

The metallized coating is extremely hard and, being microscopically porous, holds lubricants.

Results: Not one shaft has failed in 16 months. One spindle removed for inspection after a year of service showed no appreciable change in diameter. In addition to the increase life of the spindles, the bronze sleeve bearings last longer too.

Total spraying cost per spindle averages only 25% of the spindle replacement cost. However, the superintendent considers the main advantage to be in assurance of uninterrupted production. About 100 machines are being used in the plant at present, all of them containing metallized wheel and work spindles.

Because of the close adhesion of the coating to the interface, it also serves as a good foundation material for bonding a coating to another metal. All mechanical preparations, beyond thorough cleaning, are eliminated.

Source: Sprabond wire is a product of Metallizing Engineering Company, Inc., Dept. CP, 38-14 30th St., Long Island City, N. Y. . . . or for more information check CP 1531 on handy form, pages 2 and 3.

**Discusses factors controlling
surface roughness evaluation**

Normal sensory impressions are inadequate for determining the degree of surface roughness, according to 4-page bulletin. The fact that the mind is conditioned by experience proves a handicap in making tests of this kind.

Publication discusses how differences in shape, surface pattern, color, and reflectivity can affect surface comparisons. It shows the effects of roughness contour on apparent roughness as judged by eye; and evaluates the fingernail as a measurement tool. Bulletin L-13 is issued by Physicists Research Company, Dept. CP, 321 S. Main St., Ann Arbor, Mich. When inquiring specify CP 1532 on handy form, pages 2 and 3.

FIRST with roller bearings THROUGHOUT

IN A HORIZONTAL DUPLEX COMPRESSOR

- SPHERICAL ROLLER MAIN BEARINGS
- SPHERICAL ROLLER CRANKPIN BEARINGS
- HEAVY-DUTY NEEDLE BEARINGS
AT CROSSHEAD

Chicago Pneumatic's Class O-CE AIR COMPRESSORS are the first horizontal duplex, side crank compressors to have anti-friction roller bearings throughout . . . spherical roller main and crankpin bearings . . . heavy-duty needle bearings at the crosshead pins.

To the user, "roller bearings throughout" means easier and cheaper maintenance, and no possibility of improper bearing adjustment with resultant serious damage to frame and running gear.

Roller crankpin bearings permit the use of solid-end

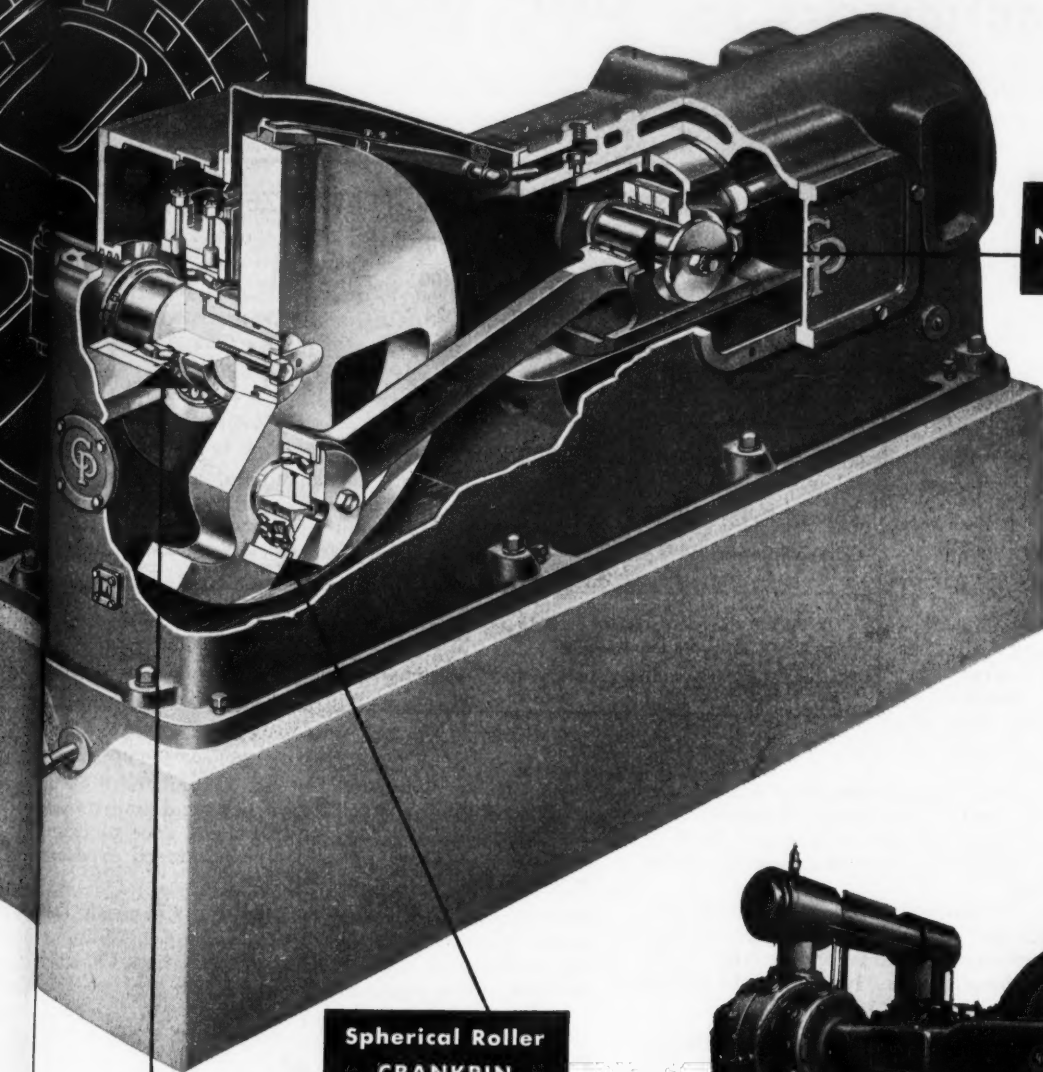
connecting rods—the strongest, safest type.

This revolutionary innovation is made possible by the recent development of the oil injection method of bearing and crank disc installation and removal. This simple method, requiring only a hand-operated oil pump and ordinary hand tools, is employed also for the application or removal of gears, couplings and sleeves on shaft ends.

Class O-CE Motor-driven Compressors are furnished in sizes up to 2000 h.p.



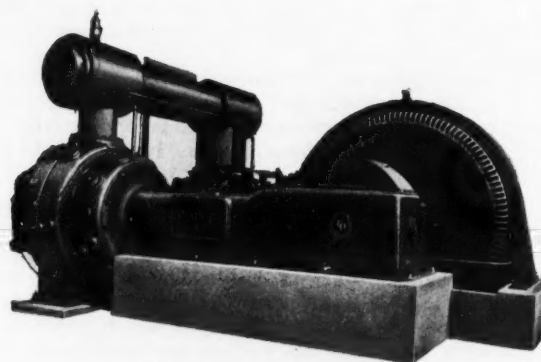
FRAME AND RUNNING GEAR OF AN O-CE HORIZONTAL DUPLEX SIDE CRANK COMPRESSOR



Heavy-duty
Needle Bearings
at CROSSHEAD

Spherical Roller
CRANKPIN
BEARINGS

Spherical Roller
MAIN
BEARINGS



CLASS O-CE TWO-STAGE
MOTOR-DRIVEN COMPRESSOR

Write for Bulletin 726-5



**CHICAGO PNEUMATIC
TOOL COMPANY**

General Offices: 8 East 44th Street, New York 17, N. Y.

PNEUMATIC TOOLS • AIR COMPRESSORS • ELECTRIC TOOLS • DIESEL ENGINES
ROCK DRILLS • HYDRAULIC TOOLS • VACUUM PUMPS • AVIATION ACCESSORIES

When inquiring check CP 1533 on handy form, pgs. 2-3

NEW SOLUTIONS of processing problems

Straight line is shortest path between materials warehouse and production plant . . .

elevated tramrail system replaces "round-about" routing of paper rolls, drums on trucks

Problem: At the Mica Insulator Co., Schenectady, N. Y., rolls of cloth and paper and drums of Bakelite varnish must frequently be transferred from the warehouse to the manufacturing building. These materials were moved in two 10-ton trucks which had to travel around the buildings. In addition, a great deal of handling of rolls and drums on an elevator was involved. As trucks did not operate at night, unforeseen need for materials that developed during night shift hours could not be met conveniently. Man hours in proportion to material handled were high. As production was stepped up, volume of materials to be handled reached beyond capacity of the two trucks. Rising costs involved in purchase of an additional truck and assigning additional workers to this job prompted consideration of a mechanical system.

Solution: An overhead tramrail carrier was erected. This permits moving loads from a platform on the first floor of the warehouse to the second floor of the manufacturing building 125' away. An intermediate enables the carrier to stop at a new storage building located about midway of the tramrail system. Track is about 30' above ground level. Carrier is operated by wall-mounted pushbutton stations and is started by depressing "hoist" button. This raises load, held by clamps attached to cable. Only after load is in top position will carrier begin traveling. It stops automatically at either of two preselected stations.

Results: Transfer of materials as required is now accomplished in a fraction of the time formerly required, and with only a few minutes labor, thus freeing workers for other jobs. As system can operate at any time to handle one of many successive loads, materials can be transferred to manufacturing building whenever needed. Savings in time, manpower, purchase of additional trucks, and truck maintenance have permitted system to pay for itself within a short period.

Source: Automatic dispatch system is built by Cleveland Crane & Engineering Co., Dept. CP, 1009 E. 289th St., Wickliffe, Ohio. . . or for more information check CP 1534 on handy form, pages 2 and 3.

Temperature and pressure controlled by regulators

Thirty-two-page catalog contains information about pilot-operated pressure and temperature regulators. Illustrated with photographs, charts, and tables, catalog discusses main valves, controls, and strainers; and gives capacities, flow data, dimensions, and weights. Special sections treat such subjects as thermostats, desuperheaters, electrically controlled regulators, strainers, and flanges.

Condensed Catalog 350 is issued by Spence Engineering Company, Inc., Dept. CP, Walden, N. Y. When inquiring specify CP 1535 on handy form, pages 2 and 3.

Four Primary Plasticizers for Cellulose Resins Are Secondary Plasticizers for PVC Resins

Liquid materials impart impact strength, moisture resistance, dimensional stability, low-temperature flexibility

SES: Series of four primary plasticizers for cellulose acetate butyrate, nitrocellulose and cellulose propionate. Each also functions as a secondary plasticizer for polyvinyl chloride resins.

Features: Collectively, these plasticizers accomplish one or more of the following when used with individual resins: low volatility, high impact strength and moisture resistance; excellent cold check and print resistance; good dimensional and color stability; heat stabilizing action; and excellent low-temperature flexibility.

More specific details are presented in the following paragraphs.

Description: All of these plasticizers, called Pycal plasticizers, are mobile liquids that are insoluble in water, but soluble in aliphatic and aromatic hydrocarbons, ketones, alcohols, lower aliphatic esters, and vegetable oils. Properties are summarized in the table accompanying this article.

Pycal 58

Pycal 58 is recommended as a primary plasticizer for cellulose acetate butyrate, in which it imparts high impact strength, good dimensional stability (because of low moisture absorption), and very low volatility. Heat and light stability are excellent. As a secondary plasticizer in polyvinyl chloride resins, Pycal 58 has fair low-temperature flexibility, low volatility, and high moisture resistance. It also has some heat stabilizing action.

Pycal 70

Pycal 70 is a primary plasticizer for cellulose acetate butyrate and nitrocellulose. As a secondary plasticizer in polyvinyl chloride resins, the material has a very pronounced heat stabilizing action, thus producing clearer films by permitting use of lesser amounts of stabilizing compounds. This stabilizing effect is of particular advantage when Pycal 70 is used in admixture with tricresyl phosphate, but pronounced stabilization is also observable in admixture with phthalate and sebacate plasticizers.

In polyvinyl chloride resins, the plasticizer also has excellent low-temperature properties. Mixtures with phthalates produce lighter colored films with better low-temperature flexibility than can be obtained with phthalates alone. Tensile strengths and elongations are comparable with those obtained with sebacates and phthalates. Very low volatility and high moisture

resistance are also advantageous.

Cellulose acetate butyrate compositions containing Pycal 70 have high impact strength, good heat stability and good dimensional stability.

Pycal 71

This plasticizer has a high degree of solvency for cellulose acetate butyrate. Molded articles containing the plasticizer have high impact strength, good color stability, and are equal in hardness to corresponding compositions containing dibutyl sebacate or dioctyl phthalate. The low volatility and high moisture resistance of Pycal 71 are of advantage in providing good dimensional stability to molded articles.

Pycal 71 imparts excellent cold check resistance to nitrocellulose lacquers, and its low volatility, high moisture resistance, and resistance to oxidation combine to promote good aging characteristics. Heat and light stability are very good.

In polyvinyl chloride resins, the plasticizer improves low-temperature flexibility of dioctyl phthalate compositions when used in amounts up to 35% of the total plasticizer. When used with dibutyl sebacate, volatility and moisture resistance characteristics are improved, without serious impairment of low-temperature flexibility. Pycal 71 has a slight heat stabilizing effect on polyvinyl chloride resins.

Pycal 76

This material has good solvency for cellulose acetate butyrate. Molded articles have high impact strength, good clarity, very low volatility, and high moisture resistance, but have only fair resistance to strong ultraviolet.

Pycal 76 imparts excellent cold check and printing resistance, and good gloss to low-cost nitrocellulose lacquer formulations. It has much higher solvency for nitrocellulose than does blown castor oil.

The plasticizer can be used in limited amounts in polyvinyl chloride formulations, in conjunction with an

PROPERTIES OF PYCAL PLASTICIZERS

Pycal Number	58	70	71	76
Color, APHA max	300	400	400	(light yellow)
Viscosity, cp, 25°C	33	24	18	61
Sp. Gr., 25°C	0.961	0.961	0.950	0.984
Refrac. Ind., 25°C	1.481	1.482	1.487	1.505
Acidity as HAc	<0.3%	<0.3%	<0.3%	(acid no. <10)
Initial Boiling Point	approx. 220°C @ 4 mm Hg abs.	24°C @ 4 mm Hg abs.	180°C @ 4 mm Hg abs.	200°C @ 2 mm Hg abs.
Approx. F. P.	60°F	-10°F	60°F	-10°F
Compatible with	CAB, CP, CN, PVC*	CAB, CN, PVC*	CAB, CP, CN, PVC*	CAB, CN, PVC*

CAB = Cellulose acetate butyrate
CP = Cellulose propionate

CN = Cellulose nitrate
PVC = Polyvinyl chloride

*All four plasticizers are compatible with PVC only when an active solvent plasticizer is present.

active solvent plasticizer. In such formulations, Pycal 76 has a mild heat-stabilizing action, and imparts excellent cold flexibility, low volatility, and good moisture resistance. Not recommended for prolonged exposure to ultraviolet.

Source: Developments of Industrial Chemicals Department, Atlas Powder Company, Dept. CP, Wilmington 98, Del. . . or for more information check CP 1536 on handy form, pages 2 and 3.

Prevents Oxidation of Light-colored Rubber Without Discoloring It

Antioxidant is effective at 0.25% in some types of products; material also inhibits oxidation of waxes, fats, oils, gasoline

SES: Outstanding applications are as a non-discoloring antioxidant for natural and synthetic rubber, and as an oxidation inhibitor for paraffin waxes. Other antioxidant uses are in fats, oils, and gasoline. It has been found that the material inhibits polymerization of some unsaturated chemicals.

Features: In some cases, ratios as low as 0.25%

antioxidant have been found entirely satisfactory in rubber compositions. Generally, however, 0.5 to 1.5% is recommended. In the suggested dosages, the antioxidant has little or no effect on scorching tendency or cure, and products display no blooming.

Tests conducted on a white stock containing 3% sulfur and a thiazole type accelerator indicate that the flex life is improved by using the antioxidant. This brings up the possibility that the antioxidant may be of definite value in white sidewalls, as well as in the carcass stocks beneath the tire, sidewalls.

Description: Antioxidant 2246 — chemical name: 2,2-methylenebis(4-methyl-6-tert-butylphenol) — is a pale-cream to white crystalline powder with a specific gravity of about 1.04. It melts at 120-130°C, is non-toxic, has very good stability, and smells slightly phenolic. The compound, though insoluble in water, is soluble in all common organic solvents. At present, it is available in research quantities.

Preliminary tests indicate that the addition of 0.001-0.005% of the antioxidant to paraffin completely prevents development of rancidity and odor when 200 ml of air per minute are bubbled through the wax at 150°C.

In accelerated tests at 125°C, it has been found that the addition of 0.025% of the antioxidant completely prevents oxidation of coconut oil for more than six hours when air is bubbled through the oil.

Antioxidant 2246 has been found to be as effective as the best of the hindered-phenol type of antioxidants in lubricating oils and gasoline.

Source: A development of American Cyanamid Company, Dept. CP, 30 Rockefeller Plaza, New York 20, N. Y. . . . or for more information check CP 1537 on handy form, pages 2 and 3.

Houghton Laboratories perfects technique of flame-spraying polyethylene . . .

will coat existing equipment, furnish new coated tanks, or supply men and equipment for field work

A method of flame-spraying (without solvents) polyethylene coatings on steel equipment has been perfected by Houghton Laboratories. The odorless, tasteless, non-toxic and non-porous coating, ranging in thicknesses from 1/32 to 1/4", is said to be free from pinholes and other defects that might permit corrosion to start. The steel surface is prepared by sand-blasting, and powdered polyethylene is applied by special flame-spraying equipment.

Considerable lab and pilot plant data are available on the process which has been in development for two years. Houghton will coat existing equipment, supply new coated tanks, or furnish equipment and personnel for coating field applications.

Source: Houghton Laboratories, Dept. CP, Olean, N. Y. . . . or for more information check CP 1538 on handy form, pages 2 and 3.

Use of bromine for control of slime and algae

Brochure reports on experiments and final results of adding bromine to control algae and slime in water cooling towers. "The Use of Bromine for Algae and Slime Control" is issued by The Dow Chemical Company, Dept. CP, Midland Mich. When inquiring specify CP 1539 on handy form, pages 2 and 3.

De-ash sugar solutions, whey, rubber latices—fractionate blood plasma—isolate antibiotics—remove acids from solutions, silica and carbon dioxide from water—speed analytical studies—produce water containing less than 1 part of ionized solids per million parts of water—in *one pass through a single bed of AMBERLITE ion exchange resins!*

But first, take time out to clip this page, to remind yourself to write to Dept. CPI-9 for your copy of the 12-page AMBERLITE MONOBED DEIONIZATION booklet.

AMBERLITE is a trade-mark, Reg. U. S. Pat. Off. and in principal foreign countries.

**deionize
solutions**

in

ONE

pass

through

ONE

column

of an

AMBERLITE

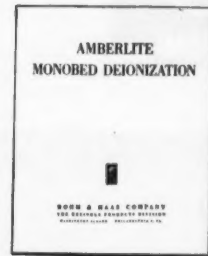
MONOBED

What is Amberlite Monobed Deionization?

How does it work?

What will it do?

Find the answer to your problem in this booklet.



CHEMICALS



FOR INDUSTRY

ROHM & HAAS COMPANY

THE RESINOUS PRODUCTS DIVISION

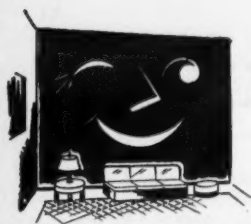
Washington Square Philadelphia 5, Pa.

The Resinous Products Division was formerly The Resinous Products Chemical Company

When inquiring check CP 1540 on handy form, pgs. 2-3



★ **Exteriors** get complete protection from paints based on VINYLITE Resins. There's no chipping or peeling and little chalking. Attractive appearance is maintained longer.



WALLS WINK AT WORK AND WEAR ...finished with coatings based on VINYLITE Resins

BRAND



★ **Interiors** stay beautiful because paints based on VINYLITE Resins can be washed repeatedly without color fading. They can be applied directly to fresh plaster.

THERE'S a pre-sold market waiting for you to deliver coatings based on VINYLITE Brand Resins. These amazing finishes have proved themselves under the toughest service conditions, indoors and out. They're saving time and money right now in such diverse fields as construction, petroleum, marine, and transportation.

The reason? These coatings offer a unique combination of physical and chemical properties. They are easily applied by conventional equipment—and they stay put for years and years on iron, steel, aluminum, concrete or masonry. Odorless, tasteless, they are highly resistant to almost all chemicals, salt, greases, oils and alkalis. They will not support combustion... have greater abrasive resistance than conventional paints. VINYLITE Resins have a place in your future formulations. Discover how they can be put to work for you. Get all the facts now. Write Dept. IT-56.

Vinylite

BRAND
RESINS



**BAKELITE
DIVISION**
UCC

Data courtesy Plastic Coating Corporation, P.O. Box 13127, Houston 19, Texas

BAKELITE DIVISION, Union Carbide and Carbon Corporation 30 East 42nd Street, New York 17, N. Y.

When inquiring check CP 1541 on handy form, pgs. 2-3

MATERIALS

Better hydraulic behavior from exchange resin in granular form . . .

cation type has good acid-regeneration efficiency; it replaces two of maker's former resins

Uses: Cation exchange resin is especially recommended for hydrogen cycle operation because of its high acid-regeneration efficiency. Useful in split-stream dealkalization and deionization. Sodium form gives excellent results for water softening. Uniformity and freedom from color-throw makes the exchanger suitable for specialty applications, as well as water conditioning.

Features: Resin is furnished in granular form, rather than beaded form, giving it improved hydraulic characteristics. Exchanger combines the good hydraulic behavior of maker's Amberlite IR-100 resin with regeneration efficiency of Amberlite IR-105. New product replaces both of these.

Physical and chemical stability has been proven by operation in small-scale commercial units over a period of more than 3 years.

Description: "Amberlite IR-105G", as the new product is known, is a medium-capacity, phenolic-type cation exchange resin. It is offered as granules in the sodium form in a moist, completely swollen condition. Moisture content is approximately 50%, screen grading (wet) is 16-50 mesh, and effective size is 0.4-0.6 mm.

Most efficient results will be obtained with the resin when it is used in the treatment of a solution which is free from turbidity and oxidizing and reducing agents, and which has a pH value lower than 8.5 and a temperature not exceeding 120°F.

A minimum bed depth of 24" is generally desirable, though this varies with unit size and application.

Since the resin is supplied in the sodium form, it must be converted to the hydrogen derivative for use in acid cycle operation. This is best accomplished by 2 successive regenerations and rinses.

Information on sodium and hydrogen cycle regeneration and operation, and rinse requirements is included in a technical data sheet available from manufacturer.

Source: "Amberlite IR-105G" is a product of the Resinous Products Div. of the Rohm & Haas Company, Dept. CP, Washington Sq., Philadelphia 5, Pa. . . or for more information check CP 1542 on handy form, pages 2 and 3.

Describes over 100 coatings, sealers, and adhesives

Two-color, 32-page catalog tabulates properties of over 100 industrial adhesives, coatings, and sealers, cites the availability of over 1000 formulas, and offers research help for industries in selecting the correct product.

Three lengthy tables cover both permanent and strippable coatings for protecting metal against abrasion and corrosion, for thermal insulation of motor housings, and for sound-deadening of metal panels; adhesives for bonding metal, rubber, glass, plastics, fabrics, and wood to themselves and to other materials; and sealers for manufacturing fuel tanks, decks, and similar equipment.

"3M Adhesives, Sealers, and Coatings" is issued by Minnesota Mining and Manufacturing Co., Dept. CP, 900 Fauquier St., St. Paul 6, Minn. When inquiring specify CP 1543 on handy form, pages 2 and 3.

CHEMICAL PROCESSING

Mixture of Monoalkyl Phenols Ready for Evaluation by Industry

Para-substituted material should be useful in making surface active agents, lube-oil additives, resins, plasticizers

USES: Suggested applications are: intermediate for nonionic surface active agents and lubricating-oil additives; starting material for various resins and plasticizers.

Description: Alkyl Phenol C-9 is a mixture of monoalkyl phenols, predominantly para-substituted. The side chains are isomeric branched alkyl radicals. A pale yellow liquid, it has a relatively high viscosity. Although practically insoluble in water and dilute aqueous caustic, the material is soluble in benzene, chlorinated solvents, aniline, heptane, aliphatic alcohols, and ethylene glycol.

Properties of a typical sample are as follows:

Molecular weight	215
Hydroxyl number	253
Distillation range, °C	293-297
Specific gravity, 20°/4°C	0.950
Refractive index, n _D 20/D	1.513
Flash point, TOC, °F	300
Color, Pt-Co scale	200

The material darkens slightly when exposed continuously to air. Rate of discoloration is accelerated by heat. The physiological properties have not been investigated fully, but no difficulty has been experienced with handling of the chemical during research and development.

Although not identical with any of the alkyl phenols described in the literature, this product is quite similar to several of them. The manufacturer has compiled a listing and discussion of known reactions of these similar alkyl phenols, stating that Alkyl Phenol C-9 will probably react in just about the same way.

Included in this listing are: reaction with epoxides, chlorohydrins, active methylene groups, aldehyde-ammonia compounds, β -unsaturated isocyanates and isothiocyanates, and formaldehydes; sulfonation; halogenation; nitration; mercuration; hydrogenation; acylation; sulfurization; and formation of phosphorus esters.

Source: Jefferson Chemical Company, Inc., Dept. CP, 711 Fifth Ave., New York 22, N. Y. . . . or for more information check CP 1544 on handy form, pages 2 and 3.

Bifunctional Intermediate Yields Wide Variety of End Products

USES: Versatile intermediate for organic syntheses. Can react either as an alkyl halide or as an aldehyde, or both, depending upon the pH of the reaction medium and the conditions employed.

Acetal group is stable in alkaline media, the intermediate reacting essentially as an alkyl halide with a variety of amines, alcoholates, phenolates, mercaptides, active methylene compounds, etc., to give acetalyl derivatives.

In acidic media the intermediate is hydrolyzed to chloroacetaldehyde and methanol — providing anhydrous chloroacetaldehyde of high concentration from a stable source. Under these conditions both the labile chlorine and the aldehyde group will react to yield a variety of interesting products. From each mole of the intermediate two molar equivalents of methanol become available for reaction or recovery.

When bifunctional compounds are reacted with the intermediate, cyclic products can be produced.

Features: Maker reports that dimethyl chloroacetal is such a versatile bifunctional intermediate that its use for one purpose often leads to another. Since it has

Dimethyl chloroacetal good source for chloroacetaldehyde; reacts like diethyl chloro-, bromoacetal

been available for only a short while, its chemistry has not been broadly investigated. However, it can be expected to react very similarly to the next higher homolog — diethyl chloroacetal — the chemistry of which has been studied extensively. In addition, it reacts very similarly to diethyl bromoacetal.

Description: Dimethyl chloroacetal — $\text{ClCH}_2\text{CH}(\text{OCH}_3)_2$ — is a pleasant smelling, colorless liquid. It is miscible with ethanol, ethyl ether, and acetone, and very slightly soluble in water. Purity is not less than 97% — containing 2% higher chlorides, 0-1% methanol, 0-1% water, less than 0.01% peroxides as active oxygen, and 0.1-0.25% stabilizer.

(Continued on next page)

Onyx Proposes... NEUTRONYX 600

An Outstanding Non-Ionic Auxiliary Having High Efficiency and Universal Applicability as a Detergent, Wetting, Dispersing and Emulsifying Agent

Outstanding Features

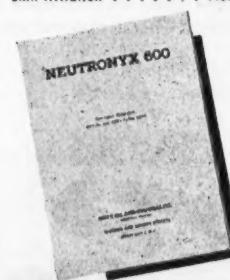
- Its stability in the presence of acids, alkalis and electrolytes
- Its low volatility and usability at elevated temperatures
- Its stable configuration, which insures safe storage over long periods
- Its non-ionic character, which insures compatibility with anionic and cationic materials, as well as hard water

Suggested Uses

- Alkaline metal cleaning compounds
- Acid cleaning and pickling operations
- Glass cleaning compounds—windows, bottles and glassware
- Dishwashing compounds
- Floor and wall cleaning formulations
- Rug and upholstery cleaners
- Fruit and vegetable washing compounds
- Railroad car cleaners
- Municipal street flushing operations
- Body washers for autos, trucks and buses
- Compounding of detergent sanitizers
- Wetting agent in dust laying
- Anti-spotting agent in film developing

NEUTRONYX 600

Chemical Constitution . . .	Aromatic polyglycol ether
Concentration	100% active
Compatibility	Compatible with acids, alkalis, electrolytes, hard water and anionic and cationic agents
Stability	Chemically stable, and does not deteriorate in storage
Solubility	Soluble in water, alcohol, glycol, acetone, toluol, mineral spirits, etc.
Toxicity	Non-toxic at all use-dilutions
Skin Irritation	None, and no sensitization



Write for Data Booklet

This data booklet covers all the facts about Neutronyx 600, including many more suggested applications besides those listed above.

onyx

INDUSTRIAL DIVISION

ONYX OIL & CHEMICAL COMPANY

184 WARREN STREET

JERSEY CITY 2, N. J.

CHICAGO • BOSTON • CHARLOTTE • ATLANTA

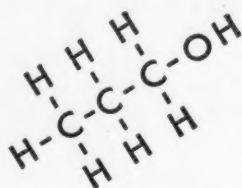
In Canada: Onyx Oil & Chemical Co., Ltd.

Montreal, Toronto, St. John, Que.

For Export: Onyx International, Jersey City 2, N. J.

When inquiring check CP 1545 on handy form, pgs. 2-3

CELANESE* n-PROPYL ALCOHOL



lower cost...greater volume

Celanese production of n-propyl alcohol is now meeting large-scale demands. This straight chain alcohol—applicable to processes where its characteristic excellent solvent action and miscibility can be used to advantage—is available for shipment in drum or tank car amounts.

PHYSICAL PROPERTIES

MOLECULAR WEIGHT	60.09
COLOR	water white
ODOR	characteristic alcohol-like odor
SPECIFIC GRAVITY	20°/4° C 0.8036
DISTILLATION RANGE	ASTM °C 2° including true boiling point
WEIGHT PER GALLON	20° C 6.7 lbs.
SOLUBILITY	soluble in water and practically all organic solvents
FLASH POINT	open cup 90° F
BOILING POINT	1 atm. 97.15° C
FREEZING POINT	-127° C
ABSOLUTE VAPOR PRESSURE	20° C 14.5 mm mercury
RELATIVE EVAPORATION RATE	1.3 (butyl acetate=1)

If you are looking for an improvement in your products, or short cuts in processing, the straight chain advantages of n-propyl alcohol are worth investigation. n-Propyl alcohol allows the solvent user greater solvent formulation freedom and can be used as a replacement and extender for higher alcohols. Call or write for additional information and specifications and a copy of the newly published Celanese Chemical Brochure.

CELANESE CORPORATION OF AMERICA.
Chemical Division, Dept. 55-K.
180 Madison Avenue, New York 16, N. Y.

Celanese
CHEMICALS

*Reg. U. S. Pat. Off.

ALDEHYDES • ALCOHOLS • ACIDS • SOLVENTS • GLYCOLS • KETONES • PLASTICIZERS

When inquiring check CP 1546 on handy form, pgs. 2-3

MATERIALS

Additional properties are tabulated:

Specific Gravity, 25/25° C	1.0852-1.0952
Boiling Range, °C	126-132
Freezing Point, °C	below -60
Flash Point, open cup, °F	110

Dimethyl chloroacetal may be purified by drying over an alkaline drying agent such as anhydrous sodium or potassium carbonate, etc., followed by fractional distillation to remove the stabilizer. Handling the intermediate may be hazardous, and due care should be exercised. Available in 1-gal glass bottles, 5- and 55-gal drums, and tank cars.

Source: Product of Antara Products, General Aniline & Film Corporation, Dept. CP, 444 Madison Ave., New York 22, N. Y. . . . or for more information check CP 1547 on handy form, pages 2 and 3.

Patches in glass linings stand repeated water coolings from 300°F . . .

cement eliminates need for anchoring patches with plugs, plates, or gaskets

Uses: Cement is intended for patching glass-lined reaction vessels that are subjected to heating and cooling cycles in the range from 50 to 275°F.

Features: Coefficient of expansion of the set cement is very close to that of the material patched, thus assuring prolonged adhesion. Laboratory tests were conducted to determine the life of patches. After 20 to 30 cycles of heating to 300°F followed by water quenching, patches were still intact. This is 5 to 9 times the life of other cements tested. Cement does away with the need for anchoring patches with plugs, plates, or gaskets.

Description: Carbo-Fix 6050 is used in the following manner: 1) glass is roughened around exposed steel with coarse sandpaper; exposed steel is cleaned with solvent or sandpaper; and Carboline Primer #3 is applied to exposed steel only and allowed to dry 4-8 hours. 2) Cement is prepared by mixing its three components — a fluid, catalyst, and a powder.

3) Mix is then troweled (1/8" thick) on the section to be protected and pressed down for good contact. Primed section of steel should be overlapped 1" in all directions. Patch is then allowed to dry at room temperature for 36-48 hours, or drying can be speeded by using an infrared lamp.

Source: Carbo-Fix 6050 is a product of the Carboline Company, Dept. CP, 7603 Forsyth Blvd., St. Louis 5, Mo. . . . or for more information check CP 1548 on handy form, pages 2 and 3.

Zinc stearate for sealers, pastes, and films

Specified in 2-page report is a zinc stearate which is recommended for: 1) production of sealers which have outstanding sanding qualities; 2) production of fluid pastes which can readily be discharged from grinding mills even where higher than normal mill temperatures exist; and 3) production of lacquer films which have maximum degree of flattening consistent with good film hardness.

Technical Service Report M-9 is issued by Witco Chemical Company, Dept. CP, 295 Madison Ave., New York 17, N. Y. When inquiring specify CP 1549 on handy form, pages 2 and 3.

CHEMICAL PROCESSING

Corrosion of steel by 10% H_2SO_4 can be reduced 60% by adding 0.25% of an amine . . .

other tertiary amines are useful as germicides, water-repellent treatment for building materials, etc.

Uses: Find applications in emulsification, surface modification, wetting and foaming, etc. Specific usage includes formulation of agricultural sprays and cosmetics . . . anti-static treatment for textiles, floors, and waxes . . . manufacture of flushed pigments . . . acid polymerization of synthetic rubber, formulation of cationic latices, and curing retarder and anti-scorch agent for rubber . . . preventing water spotting in lacquering operations . . . corrosion inhibitor for metals . . . beneficiation of metals by flotation . . . and many more.

Features: One amine (Amine O) is potent germicide, having a phenol coefficient of 150 against *E. typhosa* over the pH range 2.5-8.5. Corrosive action of a 10% sulfuric acid solution on steel can be reduced as much as 60% by addition of 0.25% of another amine (Amine C). Good water repellent treatment for building materials such as plaster, concrete, cement, and brick is possible with still another amine (Amine S).

Description: Alro Amines C, O, and S are high molecular weight tertiary amines. They are soluble in organic solvents, contain no inorganic salts, are heat

	AMINE C	AMINE O	AMINE S
Molecular Weight	276	355	360
Melting Point, °C	32	5	42

stable, and may be distilled in high-vacuum above 200°C. Products are sparingly soluble in water (pH 10.5), but since they are basic, they react with acids such as acetic or hydrochloric to form water-soluble salts or invert soaps. These are positively charged, and possess good tolerance to electrolyte. In addition, they are soluble in organic solvents.

Salts of fatty, naphthenic, and alkyl aryl sulfonic acids are water-insoluble but oil-soluble. Bases as well as salts of Alro Amines are surface-active in aqueous and non-aqueous media. As cationic agents, the amines exhibit many effects not obtainable with nonionic or anionic agents.

This manufacturer produces an unusually complete line of surface active agents and organic chemical specialties.

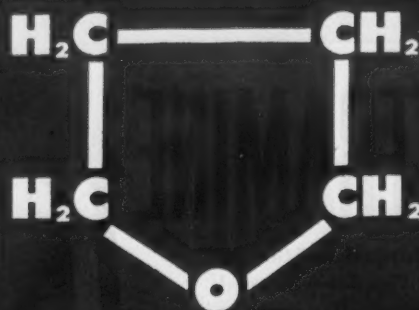
Source: Products of the Alro Chemical Co., Dept. CP, Box 1294, Providence 1, R. I. . . or for more information check CP 1550 on handy form, pages 2 and 3.

Cites diverse applications of activated carbon

Vapor and liquid phase adsorbent applications of granular and pulverized activated carbon are discussed in 10-page, illustrated booklet. Publication gives a brief historical background of carbon development; describes production and research; presents comparative advantages of using the 2 types of carbons in their various grades; and lists typical examples of the uses of each type in decolorization, deodorization, catalyst and catalyst support applications, purification, isolation, and solvent recovery.

"Activated Carbon" is issued by Pittsburgh Coke & Chemical Company, Dept. CP, 1953 Grant Building, Pittsburgh 19, Pa. When inquiring specify CP 1551 on handy form, pages 2 and 3.

COMMERCIALLY AVAILABLE FROM DU PONT



PHYSICAL PROPERTIES

Appearance	Colorless, mobile liquid
Odor	Ether-like
Molecular Weight	72.10
Boiling Range @ 760 mm.	65-67°C.
Specific Gravity, 20/4	0.887
Index of Refraction, N20/D	1.407
Flash Point	-17°C.
Vapor Pressure @ 25°C.	176 mm.
45°C.	385 mm.
65°C.	760 mm.
Solubility	Miscible with water and most common organic solvents

TETRAHYDROFURAN
POWERFUL SOLVENT for
✓ HIGH MOLECULAR WEIGHT POLYVINYL CHLORIDE
✓ VINYLIDENE CHLORIDE COPOLYMERS

HERE'S the practical solvent for many difficultly soluble organic materials and resins. With TETRAHYDROFURAN, you can get solutions of comparatively high solids content at practical working viscosities. This property, together with the lack of color and low boiling point of TETRAHYDROFURAN, make it a most useful solvent for many resins and for production of clear, light-colored lacquers, adhesives and printing ink compositions.

SOLVENT POWER

of less active solvents can be improved by additions of TETRAHYDROFURAN. For example, clear films can be cast from 10 to 15 percent solutions of high molecular weight polyvinyl chloride in a 65/35 mixture of TETRAHYDROFURAN with methyl ethyl ketone.

EFFECTIVE ADHESIVE COMPOSITIONS

for plastics and films can be formulated with TETRAHYDROFURAN. Typical compositions include a 10 percent solution of polyvinylidene chloride in TETRAHYDROFURAN to seal polyvinylidene chloride sheets and bags. Also,

a 10 percent solution of polyvinyl chloride in TETRAHYDROFURAN is an effective adhesive for polyvinyl chloride sheets.

TETRAHYDROFURAN WATER-MIXTURES

have unusual solvent power. The mixture is a better solvent than TETRAHYDROFURAN alone for materials such as cellulose acetate. Mixtures of TETRAHYDROFURAN with water are more effective solvents for alka-loids such as caffeine than either TETRAHYDROFURAN or water alone.

FOR CHEMICAL REACTIONS

TETRAHYDROFURAN is an excellent solvent medium in which to carry out Grignard, lithium aluminum hydride and sodium acetylide reactions. Its ether structure and the wide range of organic materials which it dissolves suggest its use as a medium for other chemical reactions.

AS A CHEMICAL INTERMEDIATE

TETRAHYDROFURAN reacts by substitution and fission of the ring. Among these reactions are dehydration, oxidation, chlorination, and acylation.

DU PONT
ELECTROCHEMICALS



A REQUEST on your company letterhead will bring technical bulletins, price information, and samples if desired. Just write to E. I. du Pont de Nemours & Co., Electrochemicals Department, Field Research Section, Wilmington 98, Delaware.

SPECIFY HEYDEN!

HEXAMETHYLENETETRAMINE

U.S.P. (Methenamine) Granular and Powder—shipped in 100, 50 and 25 lb. fiber drums. Technical Granular and Powder—shipped in 200 lb. barrels, and 100, 50 and 25 lb. fiber drums. Bag packing also available. Whether used as a pharmaceutical or as an intermediate for resins, plastics and chemicals, these Heyden products can be relied upon for highest quality.

FORMALDEHYDE

Clear, colorless liquid of highest purity and uniformity, with a minimum assay of 37%. Available in U.S.P. grade and methanol-free grade. Shipped in tank cars, tank trucks, drums, carboys and bottles.

PARAFORMALDEHYDE

An alternative source of methylene linkages equal to Heyden Formaldehyde in purity and uniformity. Powder, Flo Granules and Granules. Fiber Drums: 250, 50 and 25 lbs.

CHEMICAL CORPORATION

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DETROIT 1 • PROVIDENCE 3

Benzaldehyde • Benzoxates • Benzyl Chloride
Bromides • Chlorinated Aromatics • Cresols
Formaldehyde • Formic Acid • Glyceryl phosphates
Glucools • Hexamethylenetetramine
Medicinal Colloids • Methylene Disulfoxide Acid
Paraformaldehyde • Phenylhydrazobenzoates
Pentamidine • Pentamethylamine
Propylamine • Rosarol • Salicylates
Salicylic Acid • Streptomycin



MATERIALS

**Joins foam rubber —
applies by brush,
air-cures . . .**

adhesive requires no additions,
has short tack time

Uses: Solvent type adhesive for
joining foam rubber.

Features: Does not require the
addition or mixing of an accelerator.
Brushes readily, and air-cures in a
few hours. Bond remains flexible
and is free from pinching, blocking
or other distortion.

Foam rubber parts may be joined 1
minute after application of adhesive
— it is not necessary to wait for it
to become tacky.

Description: Flintkote foam rub-
ber adhesive is an amber, trans-
parent liquid having the consistency
of thin glue. Diluent is toluol;
coverage is 200 sq ft/gal. It has a
long pot life, and in addition, has
good shelf-aging characteristics in
container.

In adhesive-strength tests, failure oc-
curred in the latex foam itself. In
determining setting time, it was found
that no deformation of the foam
occurs at the glue-line after a few
hours aging at room temperature.

Adhesive is offered in 1-, 5-, and
55-gal containers.

Source: The Flintkote Company,
Inc., Dept. CP, 30 Rockefeller Plaza,
New York 20, N. Y. . . . or for
more information check CP 1553 on
handy form, pages 2 and 3.

**Removes masking tape and
foreign matter from
clear acrylics . . .**

liquid cleaner also works on
ordinary glass; good shelf life

Uses: Liquid cleaner for remov-
ing masking tape and foreign matter
from such transparent acrylics as
plexiglass and lucite, as well as from
ordinary glass.

Features: Cleaner is reported to
have an excellent shelf life. Clean-
ing action is fast and efficient.

Description: A specially formu-
lated liquid-type cleaner, Rez-N-
Kleen is available in commercial
quantity.

Source: Schwartz Chemical Co.,
Inc., Dept. CP, 326 W. 70th St.,
New York 23, N. Y., is the maker. . .
or for more information check CP
1554 on handy form, pages 2 and 3.

For more information on prod-
uct at left, specify CP 1555
. . . see information request
blank between pages 2-3.

CHEMICAL PROCESSING

MATERIALS

Offers test quantities of taurine derivative . . .

sodium salt of N-methyltaurine useful for making pharmaceuticals, dyestuffs, detergents

Uses: Versatile intermediate for use as a building block for detergents, dyestuffs, pharmaceuticals, and various other organics.

Features: Being offered to industry in experimental quantities. Formerly manufactured solely for maker's own use.

Description: N-methyltaurine is being offered in the form of an aqueous solution of its sodium salt ($\text{CH}_3\text{-NH-CH}_2\text{CH}_2\text{-SO}_3\text{Na}$ with molecular weight 161). It is clear and colorless, has a freezing point of approximately -28°C , and contains 34-36% by weight of the sodium salt, together with approximately 1% of free caustic soda. The sodium salt itself acts as a weak base, and will react with one equivalent of acid.

Other taurine derivatives, butyltaurine for example, can also be prepared by this maker.

N-methyltaurine can be used in the manufacture of very good detergents by combining it with fatty acid chlorides (as disclosed in maker's US Patent No. 1,932,180). Products of this process are known as taurides, are compatible with soap, and possess good lime-soap dispersing power. They are reported to be very good detergents in themselves. They respond well to the action of alkaline builders, providing good bases for heavy-duty detergents.

By combining N-methyltaurine with various fatty acid chlorides in the C_{12} to C_{18} range (both saturated and unsaturated), many tailor-made products with unusual properties are possible.

Bifunctional character of N-methyltaurine, containing both a secondary amine group and a solubilizing sulfonic acid group, makes it of interest in manufacture of dyestuffs and pharmaceuticals, especially as a stabilizer and solubilizer.

Because of its low molecular weight, it offers, pound-for-pound, more secondary amine combined with sulfonic acid than other available compounds.

Source: Product of Industrial Chemicals Dept., Antara Products, General Aniline & Film Corporation, Dept. CP, 435 Hudson St., New York 14, N. Y. . . . or for more information check CP 1556 on handy form, pages 2 and 3.

Gives properties, specs of vinyl acetate

Four-page bulletin presents in detail physical and chemical properties, latest specifications, and information on shipping and handling vinyl acetate. Used chiefly as the starting material for production of thermoplastic polyvinyl resins, adhesives, and surface coatings, vinyl acetate may not be shipped in unstabilized form; precautions to be followed in removing the stabilizers as well as methods for polymerizing are outlined.

Vinyl acetate may be polymerized to form polyvinyl acetate, polyvinyl alcohol, polyvinyl acetals, or copolymer resins. It can be chlorinated to give chlorethyl acetates, acetyl chlorides, and various chloracetals. Bulletin 17 is issued by Niacet Chemicals Division, U.S. Vanadium Corporation, Dept. CP, 967 Niagara Bldg., Niagara Falls, N. Y. When inquiring specify CP 1557 on handy form, pages 2 and 3.

NOVEMBER, 1950

— In cosmetics



— In textiles

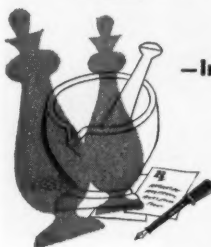


— In foods



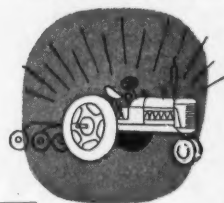
QUICK FACTS ABOUT

Glycerine!



— In drugs

— In protective coatings



5 free booklets—

review Glycerine applications across a wide range of industry. Here's up-to-date information on the role Glycerine plays in your business . . . and a wealth of technical data besides!

All five contain pertinent information on the physical and chemical properties of Glycerine . . . its origin and development . . . grades and their applications, as well as a number of comprehensive tables and graphs.

Compiled by the Glycerine Producers' Association and edited by technical consultants, these easy-to-read booklets are designed to aid the production man as well as the research technician. Check the titles in which you're interested and mail the coupon TODAY!

Glycerine Producers' Association, 295 Madison Avenue, New York 17, N. Y.

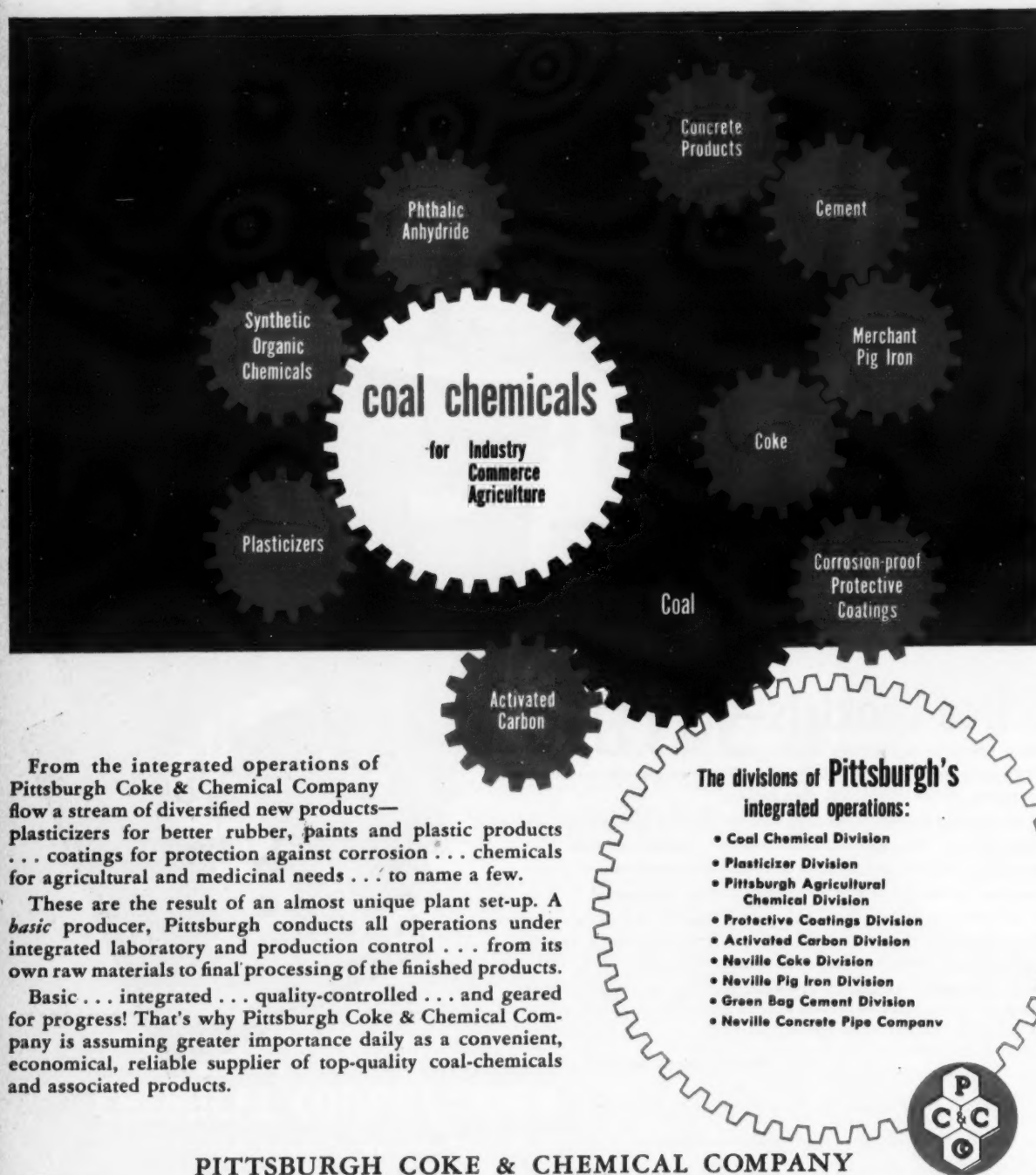
Please send copies of these Glycerine booklets

- ☐ Why Glycerine? (a general survey of all main uses)
- ☐ Why Glycerine for Alkyd Resins and Ester Gums?
- ☐ Why Glycerine for Drugs and Cosmetics?
- ☐ Why Glycerine for Foods?
- ☐ Why Glycerine for Textiles?

Name _____
 Title _____
 Company _____
 Address _____
 City _____ Zone _____ State _____

When inquiring check CP 1558 on handy form, pgs. 2-3

geared for progress



From the integrated operations of Pittsburgh Coke & Chemical Company flow a stream of diversified new products—plasticizers for better rubber, paints and plastic products . . . coatings for protection against corrosion . . . chemicals for agricultural and medicinal needs . . . to name a few.

These are the result of an almost unique plant set-up. A basic producer, Pittsburgh conducts all operations under integrated laboratory and production control . . . from its own raw materials to final processing of the finished products.

Basic . . . integrated . . . quality-controlled . . . and geared for progress! That's why Pittsburgh Coke & Chemical Company is assuming greater importance daily as a convenient, economical, reliable supplier of top-quality coal-chemicals and associated products.

PITTSBURGH COKE & CHEMICAL COMPANY

1953 Grant Building • Pittsburgh 19, Pa.

COKE • CEMENT • PIG IRON • PLASTICIZERS • COAL CHEMICALS • ACTIVATED CARBON • PROTECTIVE COATINGS
AGRICULTURAL CHEMICALS • SYNTHETIC ORGANIC CHEMICALS

When inquiring check CP 1559 on handy form, pgs. 2-3

MATERIALS

Eight adhesives for packaging military supplies meet JAN specifications . . .

formulations are designed for fast setting speeds as an aid in cutting labor costs

Uses: Water-resistant resin adhesives meet joint U. S. Army and Navy packaging specifications, and are being used both in military depots, arsenals, as well as by bid contractors and vendors to the armed services who are required by the terms of their contracts to pack their products for export.

Features: Complete line of military specification adhesives has been tested by approved laboratories, and is supplied with certification of compliance with Government requirements. Formulations are designed to give fast setting speeds as an aid in cutting labor costs, and to provide containers with test results which exceed specification requirements so danger of military rejection is avoided.

As new Army-Navy specifications are written, this manufacturer develops new adhesive grades to meet test requirements.

Description: Four adhesives meeting the requirements of JAN-P-101 for sealing solid fibre V-board shipping cases, as outlined in JAN-P-108, are being offered. Each grade meets specification strength and water immersion requirements. Setting speeds are regulated to fit standard industrial packaging and case sealing equipment. Fast-setting types for machine use are slightly more costly than those types for hand application, but offer compensating advantages.

Four other adhesives meeting the requirements of JAN-P-140 are offered for manufacture of case liners for wooden boxes, forming water-resistant paper bags, and for making other flexible wrappings. Since most water-resistant bags and case liners are produced by hand methods, formulations are designed for correct spreadability, tackiness, and reseal features to assist speedy production by this method.

JAN specification adhesives are available in 1-, 5-, and 55-gallon drums.

Source: Products of Paisley Products, Inc., Dept. CP, 1770 Canalport Ave., Chicago 16, Ill. . . or for more information check CP 1560 on handy form, pages 2 and 3.

Shows uses of phenolic resins in Croning molding process

Croning or "C" process for producing foundry molds and cores has received wide attention in the foundry industry. Its advantages include increased production, reduced cost, and improved quality.

Sixteen-page, illustrated booklet describes use of company's phenolic resins for producing molds and cores by this process. Information contained is of a fundamental nature, designed to help those interested in evaluating the possibilities the process may have in their own foundry. It contains step-by-step photographic description, together with such recommendations for producing patterns, molds, and cores as are available at this time.

"Bakelite Phenolic Resins" is issued by Bakelite Division, Union Carbide and Carbon Corporation, Dept. CP, 300 Madison Ave., New York 17, N. Y. When inquiring specify CP 1561 on handy form, pages 2 and 3.

CHEMICAL PROCESSING

MATERIALS

Imparts heat, light resistance to polyvinyl chloride resins . . .

use of cadmium-barium type stabilizer eliminates mixing several stabilizers for these results

Uses: Stabilizer for polyvinyl chloride resins.

Features: Combines the better qualities of both cadmium and barium fatty acid soaps — thus providing a general purpose stabilizer with combined resistance to both heat and light. Mixing several stabilizers for these combined results is no longer necessary.

Description: Stabilizer #70 is a cadmium-barium fatty acid soap. It is a light-cream colored powder with specific gravity 1.23, and melts at 130°C. Analysis: total ash, 32.0%; free fatty acid, 0.5%; moisture, 0.5%. Readily dispersible in ketones, aliphatic and aromatic hydrocarbons, high-boiling alcohols, and most commonly used plasticizing esters.

Light stabilizing efficiency of Stabilizer #70 approaches that of cadmium stearate and should be sufficient for most applications. There is no change produced in the surfaces of films when exposed in a standard carbon arc weathering unit for a period of 500 hours.

Heat stability provided is reported to be excellent. Employing commonly used resins, dioctyl phthalate plasticizer, and protecting with 2 parts Stabilizer #70 per 100 parts resin, resulting clear films withstand 60 minutes heating at 340°F in a Greer oven. At the end of this test period the compounds exhibit a clear straw color. Extending the heating period to 90 minutes at 340°F, the over-all darkening rate is very gradual.

Chemical nature of this stabilizer imparts several additional properties which are often desirable. Fatty acid content exerts a lubricating effect on heat-processed compounds, helpful in factory operations. This fact promotes smooth rapid extrusions and minimizes the tendency of the compounds to adhere to heated calender and mill rolls. In addition, formulations stabilized with this material show increased resistance to moisture.

Stabilizer #70 is considered toxic due to the metals contained, and it is not recommended for application where toxicity of the final product is a factor.

Source: Those who would care to experiment with Stabilizer #70 can obtain samples from the Witco Chemical Company, Dept. CP, 295 Madison Ave., New York 17, N. Y. . . . or for more information check CP 1562 on handy form, pages 2 and 3.

Describes applications of resin to adhesives

Fourteen-page technical booklet describes the expanding use of resin in production of Buna N cements and adhesives. This resin is a complex mixture of uncharacterized resinous components, including phenols, phenol ethers, and polyphenols. It is hard, friable, high-melting, and thermoplastic. Its use as a resin modifier is based on a combination of properties, including adhesiveness, compatibility with adhesive film-formers, and low cost.

Emphasis in booklet is placed on its use with Buna N, although other adhesive types are mentioned. Contents include general properties, available forms, storage effects on viscosity, bonding, and curing. All information is based on research conducted in company's labs.

"Vinsol Resin in Buna N Adhesives" is issued by Hercules Powder Company, Dept. CP, Wilmington, Del. When inquiring specify CP 1563 on handy form, pages 2 and 3.

NOVEMBER, 1950

	THE CASE OF THE MISSING BATCH

WHERE DID IT GO?

Down the sewer — rejected.

WHY?

Unreliable chemicals spoiled it.

Even when only one batch in ten goes sour, your cost on the other nine goes up at least 11%. That's why so many process industries have found it pays to use Mallinckrodt Fine Chemicals. Their unwavering purity makes it far easier to turn out uniformly better batches . . . eliminate rejects.

• better batches begin with **MALLINCKRODT FINE CHEMICALS**



MALLINCKRODT CHEMICAL WORKS

Mallinckrodt St., St. Louis 7, Mo. • 72 Gold St., New York, N. Y.

CHICAGO • CINCINNATI • CLEVELAND • LOS ANGELES • MONTREAL • PHILADELPHIA • SAN FRANCISCO
Manufacturers of Medicinal, Photographic, Analytical and Industrial Fine Chemicals

When inquiring check CP 1564 on handy form, pgs. 2-3

RESULT:

Often your spoilage savings enable you to maintain higher quality at lower long-run cost. May we give you the benefit of our long experience in solving quality control problems?

Covers uses, specifications of cellulose esters

Fifty-nine-page book includes comprehensive and detailed information covering uses and specifications of cellulose acetate and cellulose acetate butyrate; their compatibility with solvents, resins, and plasticizers; and procedures of analysis.

Intended primarily as a lab manual for those interested in using cellulose esters in such applications as textile coatings and impregnations, paper coatings and impregnations, lacquers, molding compositions, paint and lacquer removers, photographic film sheeting, tape and thread, laminated foil, protective strippable coatings, and synthetic fibers.

"Eastman Cellulose Esters", 9th edition, is issued by Tennessee Eastman Corporation, Dept. CP, Kingsport, Tenn. When inquiring specify CP 1565 on handy form, pages 2 and 3.

Glacial form of acrylic acid offered for first time . . .

esterifies directly with alcohols, permits polymerizations conducted in organic solvents

Uses: Expected to find wide usage in the plastics industry as a monomer, and in the chemical industry in general as an intermediate for the preparation of esters and other derivatives.

Features: Acrylic acid is being offered for the first time in the glacial or "dry" form — with over 97% purity and containing less than 1% water. It is more stable during shipment and storage than the former water-solution type. In one test it was held at 70°C for 3 weeks without any deterioration. Also, shipping a pure material instead of a water solution offers marked economies in transportation costs.

Glacial product can be esterified directly with any alcohol to make acrylic esters, thus eliminating the time-consuming procedure of ester interchange. Can be used as a monomer or comonomer in polymerizations conducted in organic solvents, or in bulk polymerization commonly used in casting resins. (Water-solution type was limited to emulsion or aqueous-solution polymerization.)

In addition, the glacial form facilitates the preparation of salts of acrylic acid, both metallic and ammonium. Many additional reactions with the double bond of acrylic acid are facilitated by the anhydrous form.

Description: Glacial acrylic acid is being prepared from beta-propiolactone by molecular rearrangement, parent material and product having the same molecular formula. Product is a clear, colorless liquid boiling at 142°C at 760 mm Hg. It melts at 12-13°C, has a specific gravity of 1.048 g/cc at 20°C, and a refractive index of (N₂₀/D) 1.420. Chemically it is very reactive and polymerizes rapidly in the presence of oxidative catalysts.

High-molecular-weight acrylate monomers such as butyl acrylate, 2 ethyl hexyl acrylate, and others can be prepared from the product. These materials are water clear liquids which can be polymerized and copolymerized with each other or other monomers to form resinous materials ranging in properties from soft and rubber-like to hard and transparent plastics.

Because of the strength, excellent heat and light stability, water resistance, and wide range of hardness and



Every month Monsanto publishes these pages of pertinent information. Here you will find suggestions and application ideas selected to help you improve your products, lower your production costs, increase your sales. More information will gladly be furnished on request.

NEW CHEMICALS

More than a score of new products have been added to the ever-growing family of Monsanto Chemicals. Many of these Monsanto additions already have well-established applications in *servicing industry . . . which serves mankind*. There are, no doubt, many more applications yet undiscovered.

Among the new Monsanto Chemicals listed on these pages may be some that can help you improve products, lower production costs or develop something entirely new for your market. Look over the descriptions, and, if you see such possibilities, mail the coupon for information.

Colloidal Aluminum Phosphate "D"

Suggested Use: To confer high "green strength" and good high-temperature bonding to heavy-duty refractories and other ceramics; to substitute for sodium silicates, particularly where the alkalinity of silicates is undesirable.

Properties: A glassy, thermoplastic, colloidal aluminum phosphate milled with ceramic-grade clay as a parting agent. It is a free-flowing tan powder having a packed density of 0.9. Typical analysis: P₂O₅, 37.2%; Al₂O₃, 22.2%; SiO₂, 10%; ignition loss, 30%; particle size, essentially all through 100 mesh.

Availability: Commercial quantities. (P-1)

2-Bromothiophene (alpha-Bromothiophene)

Suggested Use: Intermediate in chemical synthesis.

Properties: Colorless, oily liquid. Slowly darkens on standing. Miscible in alcohol, ether and other organic solvents. Immiscible in water. B.P. about 150°C.; Sp. Gr. 1.706 at 25°/25° C.; Refr. Ind. 1.584 at 25° C.

Availability: Pilot plant quantities. (O-2)

4-Chloro-2-Methylphenoxyacetic Acid

Suggested Use: Selective herbicide.

Properties: A technical product. Tan powder. Soluble in alcohol, benzene and acetone; sparingly soluble in water.

Availability: Pilot plant quantities. (O-3)

Diisobutenyl Succinic Anhydride

Suggested Use: Intermediate in alkyd resins, surface-active agents, plasticizers and other fields.

Properties: A colorless to pale-yellow viscous liquid. Soluble in acetone and benzene, reacts with alcohol to form esters, insoluble in water and decomposes slowly

to the acid. B.P. about 120-130° C. at 1 mm.; Sp. Gr. 1.04 at 25°/25° C.

Availability: Pilot plant quantities. (O-4)

2-(2-Dimethylaminoethylamino)-pyridine

Suggested Use: In the preparation of antihistaminics and other pharmaceuticals.

Properties: Yellow to brown, clear liquid. Miscible with water, alcohol, and benzene. B.P. about 265° C.; Sp. Gr. 0.99 at 25°/25° C.

Availability: Commercial quantities. (O-5)

Dimethyl Fumarate

Suggested Use: Copolymer in polyester resins.

Properties: White powder. Soluble in alcohol, insoluble in water. M.P. 102° C. B.P. 192° C.

Availability: Semicommercial quantities. (O-6)

Dimethyl p-Nitrophenyl Thionophosphate

Suggested Use: For the preparation of insecticidal and miticidal sprays and dusts.

Properties: Light-amber crystalline compound. Miscible with alcohol, acetone and benzene; immiscible with water. Cr. Pt. 25° to 30° C. Refr. Ind. 1.55 at 40° C. Sp. Gr. 1.39 at 25°/25° C.

Availability: Pilot plant quantities. (O-7)

2,4-Dinitrophenyl Thiocyanate

Suggested Use: Plant fungicide; short-stop in polymerization of synthetic rubber and intermediate.

Properties: Golden-yellow crystalline powder. Slightly soluble in alcohol, soluble in benzene and acetone, insoluble in water. M. P. about 135° to 140° C.

Availability: Semicommercial quantities. (O-8)

o-Ethylaniline (o-aminoethylbenzene)

Suggested Use: Chemical intermediate in dyestuff, rubber and other fields.

Properties: Yellow liquid. Like aniline, it turns red on long standing. Miscible in alcohol and benzene, slightly miscible in water. B. P. about 215° C. Refr. Ind. 1.56 at 25° C. Sp. Gr. 0.980 at 25°/25° C.

Availability: Semicommercial quantities. (O-9)

o-Ethylnitrobenzene

Suggested Use: Intermediate in dyestuff, pharmaceuticals and other fields.

Properties: Yellow to green clear liquid. Miscible in most organic solvents, immiscible in water. Cr. Pt. about -12° to -14° C. Sp. Gr. 1.1 at 25°/25° C. Refr. Ind. 1.53 at 25° C. B.P. about 228° C.

Availability: Commercial quantities. (O-10)

Fluid F-9 (Nonflammable Hydraulic Fluid)

Suggested Use: In industrial hydraulic applications where low cost, nonflammability and high lubricity are desired.

Properties: Clear, light-yellow liquid. Sp. Gr. 1.27 at 25°/25° C. Pour point about 5° F. V.I. above 15. Viscosity at 210° F., 5.5 to 6.0 centistokes. Autogenous ignition point above 1100° F.

Availability: Commercial quantities. (O-11)

p-Formylacetanilide

Suggested Use: Intermediate in pharmaceutical and other fields.

Properties: Light-yellow crystalline powder. Soluble in water (10% at boiling), soluble in alcohol and acetone. M.P. about 155° C.

Availability: Semicommercial quantities. (O-12)

p-Formylacetanilide Thiosemicarbazone

$\text{CH}_3\text{C}(\text{O})\text{NHC}(\text{H})\text{C}(\text{H})\text{NHC}(\text{S})\text{NH}_2$ M. W. 236.3

Suggested Use: In antitubercular therapy.

Properties: White to yellow-white crystalline powder. Slightly soluble in alcohol and acetone, very slightly soluble in water. M.P., decomposes about 225° C.

Availability: Commercial quantities. (O-13)

Hydraulic Fluid OS-16

(Flame-resistant Hydraulic Fluid)

Suggested Use: As an industrial hydraulic fluid in critical applications where lack of toxicity and nonflammability are required over a wide range of operating temperatures.

Properties: Clear, light-blue, mobile liquid. Sp. Gr. 1.09 at 25° C. Viscosity 11.05 centistokes at 100° F. and 2.65 at 210° F. Viscosity index 76. Pour point -70° F.

Availability: Commercial quantities. (O-14)

Methyl p-Toluenesulfonate

$\text{CH}_3\text{C}_6\text{H}_4\text{SO}_3\text{CH}_3$ M. W. 186.2

Suggested Use: As a selective methylating agent.

Properties: White to light-yellow liquid or crystals. Soluble in alcohol and benzene, insoluble in water. Sp. Gr. 1.23 at 25°/25° C. Cr. Pt. 26° to 27° C.

Availability: Commercial quantities. (O-15)

p, p' Disocyanatodiphenylmethane

$\text{p,p'-OCN-C}_6\text{H}_4\text{-CH}_2\text{-C}_6\text{H}_4\text{-NCO}$ M. W. 250

Suggested Uses: As a cross-linking agent for polymers; as an ingredient for foamed resins and in adhesives, and in the preparation of copolymers.

Properties: Pale-yellow solid. Insoluble in water, soluble in benzene. Freezing point about 37° C. Boiling point 194-199° C. (5 mm.). Sp. Gr. 1.185 at 50° C.

Availability: Semicommercial quantities. (P-16)

Phenyl 2-Thienyl Ketone (Benzoylthiophene)

$\text{C}_6\text{H}_5\text{COC}_4\text{H}_3\text{S}$ M. W. 188.1

Suggested Use: As a chemical intermediate particularly in pharmaceuticals.

Properties: Yellow or green lumps. Soluble in alcohol, acetone and benzene; insoluble in water. Cr. Pt. 52° C.

Availability: Commercial quantities. (O-17)

Phosphorous Acid 70%

H_3PO_3 M. W. 82.04

Suggested Uses: As a strong, though sometimes slow, reducing agent; as an intermediate in the manufacture of phosphite

salts. (Disodium phosphite, monosodium phosphite; sodium hemaphosphite.)

Properties: A white crystalline solid. M.P., 73° C. Furnished as a water-white 70% clear solution of phosphorous acid in water. Sp. Gr. 1.420 at 25° C. Thermal change in Sp. Gr., 0.00074 per degree C. from 10 to 60° C. Electrical conductivity, approx. 0.15 reciprocal ohms at 25° C. B.P. of 70% solution, 125° C. at 760 mm. Solution loses water up to approx. 235° C., and decomposes at that temperature to PH_3 and H_3PO_4 . Solution becomes saturated at -20° C., and freezes solid at approx. -50° C. Ref. Ind. of supercooled 100% H_3PO_3 , 1.4420 at 30° C. Phosphorous Acid is a strong dibasic acid. Ionization constants at concentration of 0.05 mols./l. at 18° C. are $K_1=5.4 \times 10^{-2}$, $K_2=2.1 \times 10^{-7}$.

Availability: Commercial quantities. (P-18)

RZ-50

$(\text{C}_6\text{H}_5)_2\text{NC}(\text{S})\text{NHC}(\text{H})_2(\text{CH}_3)_2$ M. W. 332

Suggested Use: As an ultra-accelerator for vulcanizing rubber cements.

Properties: 50% solution of N,N-dimethyl cyclohexyl ammonium dibutyl dithiocarbamate in "cellosolve." Clear brown liquid; color (N.P.A.), 8.0 max. Sp. Gr. at 25° C., 0.964.

Availability: Commercial quantities. (O-19)

Santoflex® AW

$\text{C}_{14}\text{H}_{11}\text{NO}$ M. W. 217.3

Suggested Use: As an antiweathering agent and antioxidant for natural and synthetic rubbers.

Properties: Condensation product p-phenetidine and acetone, primarily 6-ethoxy-2,2,4-trimethyl-1,2-dihydroquinoline. Dark, viscous liquid. Sp. Gr. at 45° C. 1.030-1.040. Flash point (C.O.C.), 250° F. min. Soluble in benzene, toluene, acetone, methanol, diethyl ether.

Availability: Commercial quantities. (O-20)

Santolene® C Rust inhibitor for light petroleum products

Suggested Use: Particularly suitable for inhibiting rust in lines and vessels used for transportation and storage of gasoline, kerosene and fuel oil.

Availability: Commercial quantities. (O-21)

Santolube® 374

Suggested Use: As additive in formulation of heavy-duty motor oils. Imparts detergent-dispersant and corrosion inhibition properties. Also acts as pour point depressant.

Availability: Commercial quantities. (O-22)

Santopoid® 32

All-Purpose Oil Additive

Suggested Use: Recommended for formulation of gear lubricants suitable for automotive equipment operated under conditions of high speed and heavy loads.

Availability: Commercial quantities. (O-23)

Santowhite® L

(Diamyl phenol sulfide)

$(\text{C}_8\text{H}_{17})_2\text{C}_6\text{H}_4\text{OH}$ M. W. 499

Suggested Use: As a nondiscoloring antioxidant for foamed latex sponge and other rubber stocks.

Properties: Dark, viscous syrup. Phenolic odor. Softening point 0° C. Sp. Gr. at 25° C. 0.99. Soluble in benzene, toluene, acetone, diethyl ether; insoluble in water but can be emulsified easily.

Availability: Commercial quantities. (O-24)

2-Thiophenecarboxaldehyde (Thiophene-2-aldehyde)

$\text{C}_4\text{H}_3\text{SCHO}$ M. W. 112.1

Suggested Use: As a chemical intermediate in pharmaceutical and other fields.

Properties: Colorless liquid that darkens on standing. Miscible in benzene and alcohol, immiscible in water. Cr. Pt. -6° to -8° C. B.P. 90° to 95° C. at 25 mm. Sp. Gr. 1.2 at 25° C. Refr. Ind. 1.585 at 25° C.

Availability: Commercial quantities. (O-25)

Veratrole

(o-Dimethoxybenzene)

$\text{C}_8\text{H}_8(\text{OCH}_3)_2$ M. W. 138.2

Suggested Uses: As an intermediate in chemical synthesis; as a solvent.

Properties: Colorless to pale-yellow liquid. Soluble in most organic solvents, very slightly soluble in water. M.P. 22.5° C. B.P. 207° C. Sp. Gr. 1.08 at 25°/25° C.

Availability: Commercial quantities. (O-26)

☆☆☆

MONSANTO CHEMICAL COMPANY, 1704-L South Second Street, St. Louis 4, Missouri. District Sales Offices: Birmingham, Boston, Charlotte, Chicago, Cincinnati, Cleveland, Detroit, Los Angeles, New York, Philadelphia, Portland, Ore., San Francisco, Seattle. In Canada, Monsanto (Canada) Ltd., Montreal.

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O-2	O-9	P-16	O-23
O-3	O-10	O-17	O-24
O-4	O-11	P-18	O-25
O-5	O-12	O-19	O-26
O-6	O-13	O-20	
O-7	O-14	O-21	

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MATERIALS

flexibility, the acrylate polymers find extensive use in the manufacture of pressure-sensitive adhesives; surface coating for fabric, wood, metal, paper, and leather; and serve as modifiers in plastics and synthetic resin compounding.

Glacial acrylic acid is also useful in the preparation of solid monomers such as sodium and calcium acrylates. Calcium acrylate is now being tested by U. S. Army engineers as a soil stabilizing agent for use in building emergency airfields and roads; it hardens muddy or clay surfaces in a matter of hours.

Glacial acrylic acid is shipped in aluminum drums; it presents no explosive hazard. It may be used as a pure chemical.

Source: Product of the B. F. Goodrich Chemical Company, Dept. CP, 324 Rose Bldg., Cleveland 15, O. . . . or for more information check CP 1567 on handy form, pages 2 and 3.

Destroys many types of foul smells...

chemical solution is stable to acids and alkalis and is not precipitated by soaps, anionics

Uses: Controls odors such as those arising from body excretions, stale cigar and cigarette butts, fried fish, cabbage, butyric acid, amyl mercaptan, garlic, onions, indole and mustard. Method of application depends upon the odor problem. Incorporation into a liquid, paste or powder, impregnation into paper, fabric or fillers, and application to a surface with a cleaning solution are some of the methods which suggest themselves.

Features: The material actually destroys the odors and does not merely mask them. It is highly stable to acids and alkalis, and is not precipitated by soaps or anionic materials at use-concentrations.

Description: G-271 is a 35% aqueous solution of N-soya N-ethyl morpholinium ethosulfate. It is a light amber liquid with a pH of 5 to 6.

Source: Manufactured by Atlas Powder Company and marketed by R. G. Moench & Company, Inc., Dept. CP, 11 Park Place, New York 7, N. Y. . . . or for more information check CP 1568 on handy form, pages 2 & 3.

Describes resorcinol and its uses

Use of resorcinol in fiber-reinforced goods is told in 6-page technical bulletin, which supplements a more general technical bulletin already issued. It is published in light of increased consumption of resorcinol in adhesives to bond synthetic fiber-reinforcing members to synthetic and natural rubber in belting, hose, and tires to prevent ply separation with prolonged flexing.

Included in bulletin is information on general procedure in the use of resorcinol-formaldehyde latex formulations, typical formulations for these adhesives, applications of the adhesive to cord or fabric, incidental material on formulations and their applications, and bibliography of technical and scientific references.

Technical Bulletin C-0-142 is issued by Koppers Company, Inc., Chemical Division, Dept. CP, Pittsburgh 19, Pa. When inquiring specify CP 1569 on handy form, pages 2 and 3.

ANTARA PRODUCTS
GENERAL DYESTUFF CORPORATION

435 HUDSON STREET
NEW YORK 14, N. Y.
WATKINS 4-0600

One new business card now bears two familiar names

As of October 1, 1950, Antara Products — General Aniline & Film Corporation was merged with the Organic Chemicals Division of General Dyestuff Corporation . . . The new Antara Products Division of General Dyestuff Corporation, thus formed, will coordinate and handle the sales and service of all chemicals and allied products made by the General Aniline Works Division of General Aniline & Film Corporation.

Extensive research facilities have always supported each of these former divisions. Through the amalgamation, the research and service facilities are infinitely strengthened — to an extent that must benefit all present customers of either firm.

You are invited to call upon us for any

requirements in the broad field of **SURFACE ACTIVE AGENTS** — Anionic, Non-Ionic or Cationic — detergents, wetting agents, emulsifiers, dispersants, foaming or anti-foam agents, textile finishing agents, etc.

Your inquiry will bring a prompt response — without obligation — as to whether one of the Antara surfactants may make your product easier to sell or less expensive to make. We are also interested in the cooperative development of new products. Kindly address your inquiry to Department 62.

NOTE: The Dyestuff Division will continue to operate as before, without change in personnel or policy.

ANTARA PRODUCTS

DIVISION OF

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In Canada: Chemical Developments of Canada Limited, Leaside, Toronto 17

MATERIALS

Announces a granular form of sodium diacetate

Shipping and handling information, physical properties, and general specifications of sodium diacetate are presented at length in bulletin form.

The chemical is a free-flowing, convenient, readily available source of solid acetic acid or sodium acetate, and is granular in character. An anhydrous grade is available for applications where the presence of even slight amounts of water is objectionable.

Bulletin 2A is issued by Niacet Chemicals Division of U.S. Vanadium Corporation, Dept. CP, 30 E. 42nd St., New York 17, N. Y. When inquiring specify CP 1571 on handy form, pages 2 and 3.

Lab data compare drying rates and hardness of polyhydric alcohol ester films . . .

indicate that TMC, with five hydroxyl groups, has good possibilities in making lacquers, varnishes

The experimental polyhydric alcohol, TMC (2,2,6,6-tetramethylcyclohexanol), has aroused interest in several laboratories. This alcohol, as is the case with glycerol and pentaerythritol, has its largest possible application in synthetic drying oils, rosin esters and modified alkyd resins.

However, there are many other uses. Polyhydric alcohols esterified with saturated fatty acids are waxes. If esterified with oleic or with mixtures of oleic and saturated fatty acids, they may function as plasticizers. Ethers and acetals of these alcohols are also plasticizers. Partial esters may be emulsifiers; sulfonated, they may become detergents.

TMC goes pentaerythritol one better—it has five hydroxyl (OH) groups versus penta's four. Theoretically, this "increase in functionality" should mean that films made by esterification of TMC should dry faster and be harder and tougher than those made with penta (or glycerol, which has three OH groups). Based on data secured at General Mills Research Laboratories, indications are that this is true.

These data show that linseed acid esters of the two alcohols, TMC and penta, dry to full hardness in the same length of time, but that the ester made with TMC dries faster initially. The pencil hardness of that ester is 5B after 30 hours and 4B after 72 hours, while the ester made from penta has a pencil hardness of 3B and 2B at the same time intervals.

The fast-drying and high hardness properties of TMC were emphasized when the linseed esters were formulated, together with comparative oils, into a 45-gallon oil length varnish, cooked with an ester gum type of resin. The TMC ester dried lint-free in 120 minutes and was 100% dry in 405 minutes; Sward rocker hardness was 40. Corresponding values for the penta ester were 190 minutes, 480+ minutes, and 14 hardness. Both films blushed after 24-hour water immersion.

A comparison of varnishes made with TMC and pentaerythritol also was made. Twenty-gallon oil length dehydrated castor oil varnishes were made, using TMC-rosin ester in one instance and penta-rosin ester in the other. The ingredients were heated to 300°C and held there for body. Their solids content was then reduced to 50% with mineral spirits. The TMC-rosin ester varnish (acid number 8.0) reached body in 4 hours;

CHEMICAL PROCESSING

MATERIALS

the penta-rosin ester varnish (acid number 6.0) required 7 hours.

With the same amounts and types of driers incorporated in the varnishes, the film of the TMC varnish was found to dry much faster than the penta varnish. The first set dry in 45 minutes, was lint-free in 120 minutes, and foil-free in 330 minutes. The last set dry in 75 minutes, was lint-free in 270 minutes, and required more than 600 minutes to dry foil-free.

The TMC varnish also was much harder, as indicated by Sward rocker tests. After two days, it had a 44 hardness versus a 6 hardness for the penta product. After eleven days, the hardness values were 43 and 14.

Polyhydric alcohol-rosin esters may be used in nitrocellulose lacquers to give films body and plasticity. The TMC-rosin ester may be used in large amounts to produce low-viscosity solutions which give rise to hard, flexible, water-resistant films.

A typical nitrocellulose lacquer formulation (33% non-volatiles) containing TMC-rosin ester was found to have a Gardner-Holdt viscosity of A, and the film had a Sward rocker hardness of 26 after one day and 38 after seven days. The film could be flexed over a $\frac{1}{8}$ " mandrel after one day. It dried tack-free to foil in 10 to 20 minutes, and showed good resistance to abrasion, cold-checking, water, and solvents.

(Summarized from an article by Dr. Harold Witcoff, General Mills, Inc., 2010 E. Hennepin Ave., Minneapolis 13, Minn.)

No shrinking in casting liquid phenolic . . .

resin affords production of parts without need for elaborate equipment, unusually skilled operators

Uses: Resin for casting applications.

Features: Shrinking encountered with similar materials of this type is eliminated. Permits production and duplication of parts without the need for elaborate equipment and unusually skilled operators.

Description: "8000" Tool-Plastic is a liquid phenolic casting resin, manufactured by Durez Plastics & Chemicals, Inc., North Tonawanda, N. Y. It is always used with an accelerator paste. No fillers are required. Twenty-five parts of paste are used with 100 parts of the resin. Two pastes are available: one is for repair work or emergency production and yields a mix that sets-up immediately at room temperature. Other is standard and gives a mix that sets overnight at 190°F.

No pressure is required in casting. Finished parts are infusible and insoluble. Impact strength is 0.24 to 0.3; specific gravity is 1.26.

Source: More information on "8000" Tool-Plastic can be had from Rezolin, Inc., Dept. CP, 4825 W. Jefferson Blvd., Los Angeles, Calif. . . . or for more information check CP 1572 on handy form, pages 2 & 3.

Data sheet describes fatty alcohols

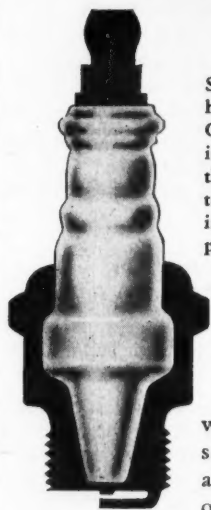
Data sheet shows typical analyses of line of fatty alcohols. Listing covers cetyl, oleyl, and stearyl alcohols in various combinations. "Fatty Alcohols" is issued by M. Michel and Company, Inc., Dept. CP, 90 Broad St., New York 4, N. Y. When inquiring specify CP 1573 on handy form, pages 2 and 3.

NOVEMBER, 1950

The salamander was a piker . . .



compared with today's automobile spark plugs



Salamanders could withstand fire without harm, the ancients believed. Benvenuto Cellini wrote that his father, looking into the fire, "spied in the middle of those most burning flames a little creature like a lizard, which was sporting in the core of the intensest coals." He pointed it out as a *salamander*, never seen before "by any one of whom we have credible information."

Even if the salamander *could* withstand fire—a supposition long since proved a myth—its heat-resistance could not compare with that of the modern automobile spark plug.

As often as 30 times a second, the spark-plug "porcelains" in your car resist alternate exposure to cold, raw gas and 4,000° F. burning fuel.

They must also resist 8,000 volts of electricity, the pressure of extremely tight assembly, the corrosive effects of modern fuels. They must not crack or even soften.

And finally, the principal material for these porcelains must be cheap and abundant.

ALCOA Tabular Alumina—a specially refined, pure form of aluminum oxide—meets all these specifications.

So, although operating conditions have grown more severe, spark-plug insulator breakdown has almost vanished. That has been the contribution of ALCOA Tabular Alumina to the practicability of high-compression engines of today and higher ones tomorrow.

Unmatched characteristics of this inert material have already suggested other uses for ALCOA Tabular Alumina: Ceramic bodies—super-duty refractories—special cements—grinding balls—laboratory ware—"pebbles" for heat exchangers—catalyst-bed supports—and others, including many still in the "laboratory" stage.

Profitable applications in your business for the physical, chemical, thermal or electrical properties of ALCOA Tabular Alumina may be suggested by our brochure, "THE SALAMANDER WAS A PIKER." It describes ALCOA Tabular Alumina—Its Properties and Uses. Write for it. ALUMINUM COMPANY OF AMERICA, CHEMICALS DIVISION, 606L Gulf Building, Pittsburgh 19, Pennsylvania.

Alcoa Chemicals



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ALUMINUM FLUORIDE • SODIUM FLUORIDE • SODIUM ACID FLUORIDE • FLUOBORIC ACID • CRYOLITE • GALLIUM

When inquiring check CP 1574 on handy form, pgs. 2-3

**ELIMINATE
SULFUR
BURNER
IMPURITIES**

*and Maintain
a Controlled SO₂
Solution*

**WITH AN
ANSUL
SO₂ SYSTEM**

**EASY TO INSTALL
ECONOMICAL TO USE**

It's so easy to install this Ansul SO₂ System and get these proved advantages:

GREATER SOLUBILITY — As indicated in the table, much more concentrated water solutions of SO₂ may be obtained from 99.9+% Ansul Liquid SO₂ than from the most efficiently produced burner gas.

HIGHER PURITY — Elimination of impurities inherent in burner gas (Ansul Liquid SO₂ is 99.9+% (by weight) PURE).

CONTROL — Easy, positive control providing extreme accuracy for reaction or adjustment of pH.

GREATER ECONOMY — Small investment in equipment, materially reduced operating and maintenance costs, and freeing of valuable floor space.

Chemical	Ansul Liquid Sulfur Dioxide	Burner Gas	
		Poor Operation	Very Efficient Operation
SO ₂	99.9+%	4.90%	19.08%
SO ₃	0.00	1.95	0.10
H ₂ O	less than 0.01	1.47	0.40
S (Sublimed)	0.00	0.49	0.10
N ₂	less than 0.10 (L.P.)	76.50	78.32
O ₂		13.72	1.00
A		.97	1.00
Ash	0.00	Trace	Trace



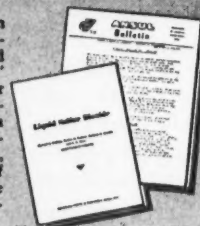
PHYSICAL PROPERTIES

Chemical formula — SO₂
Molecular weight — 64.06
Color (gas and liquid) — Colorless
Odor — Characteristic, pungent
Melting point — 103.9°F. (−75.5°C.)
Boiling point — 14.0°F. (−10.0°C.)
Density of liquid at 80°F. (85.03 lbs. per cu. ft.)
Specific gravity at 80°F. — 1.363
Density of gas at 0°C and 760 mm — 2.9267 grams per liter (0.1827 lb. per cu. ft.)
Critical temperature — 314.82°F. (157.12°C.)
Critical pressure — 1141.5 lbs. per sq. in. abs.
Solubility — Soluble in water
Purity — 99.9+% (by wt.) SO₂ (H₂O less than 0.01%)

* REG. U. S. PAT. OFF.

WRITE THE ANSUL TECHNICAL STAFF FOR FURTHER INFORMATION

Send for Bulletin P-020.1, "A comparison of Ansul SO₂ and Sulfur Burner Gas," and also for your copy of "Liquid Sulfur Dioxide" — a treatise on the properties, characteristics, and industrial uses of Liquid Sulfur Dioxide — written by the Ansul Technical Staff.



Also Manufacturers of Methyl Chloride

ANSUL CHEMICAL COMPANY
INDUSTRIAL CHEMICALS DIVISION, MARINETTE, WISCONSIN
601 42nd St., New York — Lincoln Liberty Bldg., Broad & Chestnut St., Philadelphia 7, Pa.

When inquiring check CP 1575 on handy form, pgs. 2-3

MATERIALS

**Sets-up 3 times faster
than conventional
seal compounds . . .**

lessens tendency for gases and liquids to push through threaded joints and gasket surfaces

Uses: Sealing compound for threaded joints and gasket surfaces. Suitable for use with a wide range of chemicals and solvents, including aromatic and chlorinated solvents, gasoline (100 octane), oil, "Freons",



Quick-set, non brittle sealing compound

methyl chloride, sulfur dioxide, carbon tetrachloride, butane, propane, benzene, etc. Dielectric properties permit its use as a sealer and insulator.

Features: Forms an elastic, rubbery, tough film that flexes with vibrations, yet retains a smooth, non-porous skin. Maker reports compound sets-up approximately 3 times faster than other non-brittle types, lessening the tendency for liquids and gases to push through the seal. Compound remains plastic enough to permit easy disassembly of joints.

Description: Leak Lock sealing compound has a base of poly-hydroxylated plastic, resistant both to mechanical stress and chemical breakdown. It is being offered in non-clogging tubes, as well as in cans.

Source: Product of the Highside Chemicals Co., Dept. CP, 10 Colfax Ave., Clifton, N. J. . . . or for more information check CP 1576 on handy form, pages 2 and 3.

**Stops dirt redeposition
onto textile fibers
during washing . . .**

suspending agent is suitable for warp sizing, finishing cotton and rayon fabrics

Uses: Acts as a soil suspending agent by preventing redeposition of dirt onto textile fibers, particularly when compounded with detergents of the alkyl aryl type. Suitable for warp sizing and finishing cotton and rayon fabrics. Lends itself to the formulation of laundry starches and household liquid starches.

Features: Whiteness retention tests on unsized cloth are indicative of the efficiency of this agent. One such cloth sample was immersed and agitated in a solution of standard soil containing a conventional detergent; another sample was agitated in a similar solution to which a small quantity of soil suspending agent had been added. The former sample showed a very heavy deposit of soil; the latter was many shades lighter in appearance. Maker reports the agent can be used at a fraction of the cost of conventional cellulose derivatives.

Description: Nu-Film, as the new starch is called,

NIACET

TRADE-MARK

ACETATES

ALUMINUM ACETATE

20% Normal and 24% Basic Solutions for technical use.

ALUMINUM FORMATE

22.4% Basic Solution for technical use.

"NIAPROOF" POWDER

Water-soluble, stable, basic aluminum acetate.

Water repellent.

COPPER ACETATE

A non-dusting, normal cupric salt, soluble in water.

POTASSIUM ACETATE

Anhydrous, Technical, or U.S.P. grades. Also available as a solution in tank cars.

SODIUM ACETATE

Anhydrous and N.F.VIII 60%. Also Technical 60% for rubber compounding exclusively. All grades low in iron and chlorides.

SODIUM DIACETATE

A convenient powdered source of acetic acid—Technical or Anhydrous grades available.

ZINC ACETATE

A completely soluble, free-flowing, normal salt.

Also

VINYL ACETATE

SUCROSE OCTA ACETATE

NIACET acetates are made from synthetic acetic acid by carefully controlled processes assuring high quality and uniformity.

For Further Information Write to



Sales Offices:

926 Niagara Bldg. • Niagara Falls, N. Y.

When inquiring check CP 1577 on handy form, pgs. 2-3

CHEMICAL PROCESSING



For Longer Filter Life

Abrasion damage in your filtration processes can be avoided by the use of SOLKA-FLOC. SOLKA-FLOC is capable of removing iron by adsorption. In addition, its filter cakes may be ashed for disposal or recovery of metals, or even in some cases sold as animal feed.

This remarkable filter aid is all cellulose. For appropriate sample selection, describe your filtration system to our Technical Service Department.

SOLKA®-FLOC

BROWN COMPANY
Berlin, NEW HAMPSHIRE

500 Fifth Avenue, New York 18, N.Y.
Brown Corp., Dominion Sq. Bld., Montreal, Can.

FOREMOST
PRODUCERS



PURIFIED
CELLULOSE

When inquiring check CP 1578
on handy form, pgs. 2-3

MATERIALS

is an acid ester derivative containing sodium carboxylate and sulfonate groups. Laboratory tests indicate that this soil suspending agent can be removed from fabrics without the use of enzymes.

Source: Complete technical data and samples of Nu-Film are available from National Starch Products Inc., Dept. CP, 270 Madison Ave., New York 16, N. Y. . . . or for more information check CP 1579 on handy form, pages 2 and 3.

New form of coating for concrete floors is liquid . . .

was formerly offered as crystals that required dissolving in water; just requires dilution now

Uses: Coating, or "casehardener" as manufacturer calls it, for new or old concrete floors. Guards against surface break-down by sealing out oil, grease, other disintegrators.

Features: Product is being offered in a new form — liquid. Was formerly sold in the form of crystals which required dissolving in water.

Description: New form of concrete floor coating is known as "Flintcrust Liquid". For application, floor surface (concrete or terrazzo) must be clean and dry. New floors must be completely set. Three applications are recommended with thorough drying between each coat; over-night drying is desirable. Each treatment is flushed on floor and swept out over the area to prevent puddling. Excess solution should be mopped-up.

First application requires 1 part "Flintcrust Liquid" and 2 parts water; the second 1 part coating and 1 part water; and the final application 2 parts coating and 1 part water.

Source: Product of the Flexrock Company, Dept. CP, 3611 Filbert, Philadelphia 4, Pa. . . . or for more information check CP 1580 on handy form, pages 2 & 3.

Government bulletin covers domestic montan wax

Arkansas and California lignitic coals offer a most promising source of montan wax, a natural wax used in many industrial processes, according to 63-page government bulletin. Publication discusses geological occurrence, petrographic composition, and extractable waxes of domestic lignites, with special emphasis on montan wax.

Commercial grade montan wax is a high-melting, hard, brittle wax used in polishes, electrical insulating compositions, leather dressing, inks, protective coatings, and other compositions. Properties given include melting point, saponification and ester values, specific gravity, etc.

Copies of Bulletin 482 may be obtained by remitting 35¢ direct to Superintendent of Documents, U.S. Government Printing Office, Washington 25, D. C.

Application techniques for adhesive cements

Handbook on the application of adhesive cements and compounds contains 64 pages, over 150 illustrations, and much data. "Engineers' Production Manual" is issued by Sauereisen Cements Co., Dept. CP, Sharpshburgh Station, Pittsburgh 15, Pa. When inquiring specify CP 1581 on handy form, pages 2 and 3.



FURAFIL*

answers your needs for

AN ANTI-CAKING AGENT

Furafil is widely used as a conditioning and anti-caking agent in the manufacture of mixed fertilizers.



Get this



Not this

A SLOW BURNING CELLULOSIC MATERIAL

Its controlled burning rate results in its use in foundries as a burn-out material to prevent mold distortion.



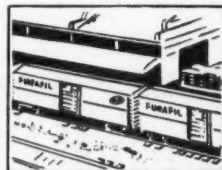
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AN AVAILABLE MATERIAL

Furafil is shipped in bulk from two plants and in bags from one of these plants.



Get this



Not this

Furafil is a dark brown, free-flowing, pulverized powder. It is made up primarily of modified cellulose and lignin and has a coffee-like appearance.

In addition to the properties mentioned, Furafil is a potential source of cellulose and lignin. Its high carbon content make it a source of activated carbon, and provides a reducing atmosphere when the Furafil is burned.

Furafil can be the answer to your needs. Write for technical literature and a sample. Our Sales Service Staff will be happy to help with any evaluation you may wish to make.

*Trademark



The Quaker Oats Company

CHEMICALS DEPT.

336D The Merchandise Mart
Chicago 54, Illinois

When inquiring check CP 1582 on handy form, pgs. 2-3

now... a new safeguard for your products



the super-refined qualities of PENN-DRAKE WHITE OILS are "locked-in"

In the manufacture of Penn-Drake White Oils, the finest possible crude oil stock is refined to a point well beyond USP Specifications. At this, the highest point of purity, the quality is "locked-in" by the addition of a USP-approved stabilizer, which keeps Penn-Drake White Oils from deteriorating with age.

With the addition of this preserva-

tive, the life-time stability of Penn-Drake White Oils is assured. In your processing, shipment and storage—you can be positive that your finished products will *not* suffer because of base deterioration.

To safeguard the quality of your products, specify Penn-Drake, the super-refined White Oils with the "locked-in" stability.



PENNSYLVANIA REFINING COMPANY BUTLER, PENNSYLVANIA

Branches: Cleveland, Ohio and Edgewater, N. J.

Representatives in all Principal Cities

When inquiring check CP 1583 on handy form, pgs. 2-3



To Meet Your Needs...

Octylene Glycol has been added to our glycol family. Due to its low water-solubility, octylene glycol is useful as an intermediate for plasticizers and alkyd resins. Its low hygroscopicity and volatility combined with its hydrocarbon solubility make it valuable as a coupling and blending agent for metal cutting, leather, and textile oils.

CARBIDE AND CARBON CHEMICALS DIVISION

UNION CARBIDE AND CARBON CORPORATION

30 E. 42nd St., New York 17  Offices in Principal Cities
In Canada: Carbide and Carbon Chemicals, Limited, Toronto

When inquiring check CP 1584 on handy form, pgs. 2-3

MATERIALS

Offers parts made from easily fabricated silicone rubber...

recommended for uses where extreme temps are encountered

Uses: Such parts as gaskets, sleeves, washers, channel, seals, and tubing are being either molded, extruded, punched, or die-cut from a more easily fabricated silicone rubber compound. Parts are especially recommended for applications where extremes in temperature are encountered — systems handling hot or cold fluids, gases, and vapors.

Features: Parts fabricated from this compound do not become brittle when exposed to air, ultraviolet rays, or ozone, even for extended periods of time. Parts will not carbonize despite extreme heat.

Description: Silicone 161 is red in color, eliminating soiling during end of fabrication. Though dielectric strength is 170 volts/mil, the compound retains other qualities of silicone rubbers — including resistance to heat, weathering, chemicals, and oils.

Fabricated parts have tensile strengths ranging from 470 to 520 psi, elongation of 110 to 160%, and specific gravity of 2.1.

Source: Parts are furnished by The Stalwart Rubber Company, Dept. CP, 221 Northfield Rd., Bedford, O. . . . or for more information check CP 1585 on handy form, pages 2 & 3.

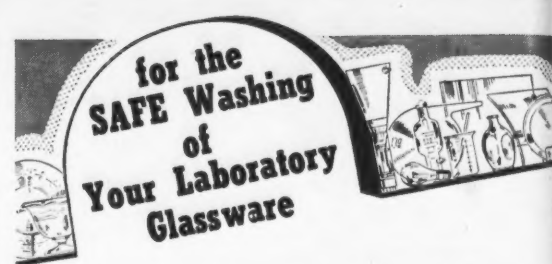
Offers substitute for glycerin...

synthetic can replace glycerin in textile, paper, glue fields

Uses: Substitute for glycerin. May be used as a softener and plasticizer for glue, gelatin, and water soluble gums. Also useful as a lubricant and softener in textile and paper manufacture. Not suitable as an anti-freeze. Although non-toxic, it should not be used internally.

Features: "Aquaresin" is being produced on a tonnage basis, and should be a convenience to manufacturers in many applications by replacing or supplementing the scarce supply of glycerin.

Description: "Aquaresin" is an odorless, viscous, colorless, non-drying, hygroscopic liquid. The pH of its 5% aqueous dispersion is 8 to 8.4. Specific gravity is 1.37. It is insoluble in oils and hydrocarbons,



... USE ALCONOX the accepted fast-acting Cleanser

Eliminate weight loss, etching and weakening of the glass. ALCONOX is the ideal cleaner for laboratory glassware, instruments and equipment.

Preserve accurate readings and strength of your glassware — cut down breakage. ALCONOX leaves no film or streaks.

Packaged in: 3-lb. cartons
50-lb. bags

Carton of 12
300-lb. drums

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Dept. CP11

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61 Cornollison Avenue

Jersey City 4, N. J.

ALCONOX *cleans better
cleans quicker*

When inquiring check CP 1586 on handy form, pgs. 2-3

How 3 plants have CONTROLLED CORROSION



by applying systems of

TOUGH, CHEMICAL-RESISTING COATINGS

1. LARGE NORTH CENTRAL PRODUCER OF CHEMICALS has used Ucilon Coatings extensively on structural work and equipment. Applied to interiors of brine tanks, Ucilon Coating System is still in excellent condition after more than 5 years.

2. IN WELL KNOWN CORN PRODUCTS REFINERY, the Ucilon Coating System used was in tip-top condition after a year on alloyed steel tanks, which, when left unprotected, had been badly etched in weeks—despite the special steel.

3. IN TEXTILE PROCESSING PLANT, Ucilon Coating System was applied to dye-house salt machine. Two years later, the protective system was still intact. Maintenance men reported Ucilon Coatings were the only ones that were successful, others being broken down within weeks by the wet salt.

You'll find many Ucilon Coating Systems ready to give service-proved protection against this broad group of chemicals: Acids, alkalies, salt solutions, petroleum and its derivatives, water, oxidants. Coating systems have been engineered for conditions which include fumes, splashing or continuous contact with these agents. Comprising these systems are tough vinyl, phenolic, fish-oil, chlorinated rubber or other coatings, and special wash primers, primers and intercoats where required.

Learn how you can get better protection and savings in painting costs with Ucilon Coatings. Write—outlining your problem. We'll send details on the recommended coating System.

UCILON Protective Coatings

One Group of the Many  COATINGS FOR METALS

UNITED CHROMIUM, INCORPORATED 100 East 42nd Street, New York 17, N. Y.
Detroit 20, Mich. - Waterbury 90, Conn. - Chicago 4, Ill. - Los Angeles 13, Cal.

When inquiring check CP 1587 on handy form, pgs. 2-3

CHEMICAL PROCESSING

**DC
ANTIFOAM
A**

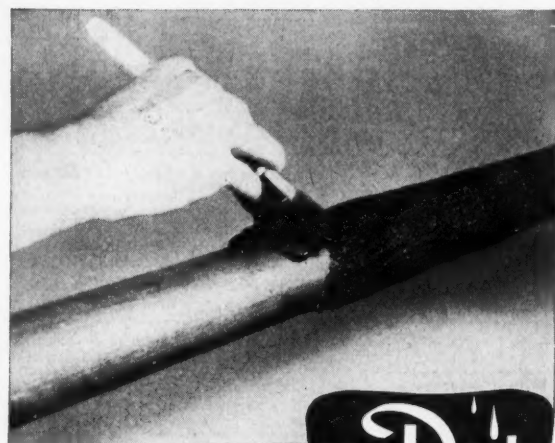
*the most versatile
and efficient defoamer
on the market*

Dow Corning
MIDLAND · MICHIGAN

A DOW CORNING
SILICONE
PRODUCT

Write Dept. G today for free sample.

When inquiring check CP 1588 on handy form, pgs. 2-3



COVER PIPES TANKS, WALLS

NoDrip

Anyone can brush, trowel or spray NoDrip on any clean, dry surface. Goes on like plaster, forms a seamless, protective coating, STOPS CONDENSATION DRIP!

NoDrip keeps equipment and floors safe and dry; prevents corrosion of metal and prolongs its life. Acid, alkali and brine resistant. Comes in 1, 5, and 55 gal. drums, ready for use.

TRY NoDRIP

Apply NoDrip to a small area, compare the results with uncovered portions.

Send for free NoDrip Handbook

J. W. MORTELL CO., 530 Burch St., Kankakee, Ill.

When inquiring check CP 1589 on handy form, pgs. 2-3

MATERIALS

also non-inflammable and not subject to bacterial or enzymatic decomposition. Offered in 55-gal drums.

Source: Product of Glyco Products Co., Inc., Dept. CP, 26 Court St., Brooklyn 2, N. Y. . . . or for more information check CP 1590 on handy form, pages 2 and 3.

**Finish for wood has
2/3rds hardness
of glass . . .**

"dries" by polymerization; resists abrasion and high temps

Uses: Plastic coating for wood surfaces. Recommended for use on sporting equipment, floors, textile bobbins, ship hulls, table and desk tops, etc.

Features: Coating differs from conventional paints, varnishes, and lacquers since it contains no drying oils or nitrocellulose. Finishes are unharmed by burning alcohol, and withstand the nail-polish and nail-polish-remover tests.

Applied coating is about two-thirds as hard as glass. It cannot be pierced with the fingernail, and is practically impossible to penetrate with a coin or other similar hard object. Film is sufficiently flexible that when extreme pressure is exerted upon it with a hard object, the wood will dent but the film remains unbroken.

No cracking or checking occurred in a coated test panel subjected to 50 alternate cycles of heating to 110°F for 1 hour followed by cooling to -5°F for another hour. Conventional finishes failed after 3 or 4 cycles in the same test.

Description: "Aroflint" is a thermo-setting, phenolic-type coating that cures or "dries" by condensation and polymerization at room temperature. Setting is induced by the addition (a simple stirring procedure) of a catalyst or hardener prior to use.

Coating is pale in color, making it adaptable for treating natural woods, and exposure tests have indicated its color retentive qualities are good. It has also been found to formulate well with paint pigments, permitting colored enamels to be prepared from it.

Finishes polish to a high brilliance, and resist water marks and abrasion.

Source: Product of U. S. Industrial Chemicals, Inc., Dept. CP, 60 E. 42nd St., New York 17, N. Y. . . . or for more information check CP 1591 on handy form, pages 2 and 3.

CAN A LOW-COST RESIN EMULSION SOLVE YOUR PROBLEMS?

TRY DU PONT ELVACET

REG. U. S. PAT. OFF.

A Polyvinyl Acetate Emulsion with these advantages

"Elvacet" emulsion . . . contains colorless, odorless, non-yellowing resin; excellent aging and light-fastness.

Easily applied—requires no costly or flammable solvents.

Uniformly dispersed in water.

Wide latitude in compounding with starches, dextrans, gums, waxes, many synthetic resins, chlorinated rubber, rubber latex and other common types of extenders, pigments and plasticizers.

for these applications

Adhesives and binders for: Cellophane, paper, cardboard, cloth, felt, straw, wood, cork, leather, metal, metal foil, mica, sand, ceramics.

Grease-proof coatings on paper or other materials . . . or grease-resistant sizes.

Rubber latex replacements and modifiers.

Textile finishes: fabric stiffeners, coatings; laminations; hat sizes.

Carriers for insecticides.

For more information about "Elvacet," help in its use for a specific application, samples, etc., send the coupon below. E. I. du Pont de Nemours & Co. (Inc.), Electrochemicals Dept., Wilmington 98, Delaware.

CLIP THIS COUPON!

**DU PONT
ELECTROCHEMICALS**



BETTER THINGS FOR BETTER LIVING
... THROUGH CHEMISTRY

E. I. du Pont de Nemours & Co. (Inc.)
Electrochemicals Dept., Wilmington 98, Del.

Please send me information about "Elvacet" polyvinyl acetate emulsion.

Name _____

Position _____

Firm _____

Address _____

CPR-AI

Tune in to Du Pont "CAVALCADE OF AMERICA" Tuesday nights—NBC coast to coast

When inquiring check CP 1592 on handy form, pgs. 2-3

IF YOU NEED A SYNTHETIC RESIN ... HERE'S HOW TO SAVE MONEY

TANK CAR purchasing of low-cost BAKELITE BCU-22 liquid urea resin is cutting production costs and boosting profits for some of the nation's leading manufacturers. It may well do the same for you!

BCU-22 is currently sold in tank car lots at a savings of 1 1/4¢ per pound compared with the price per pound in drums. This permits you to save enough money to pay for your bulk storage and distribution system fast! For example, a system to handle 60,000 pounds a month, and costing (excluding labor) \$3,000, will be amortized in four months—and return 300% on your investment the first year!

Outstanding companies like

Drexel Furniture, U.S. Plywood, Johnson-Carper, American Furniture, and Darlington Veneer are already benefiting through tank car purchase and bulk handling of BCU-22 for their top-quality furniture and plywood. And this excellent chemical intermediate is being evaluated by other industries, too, for paper sizing, cloth treating, fortifying starch adhesive for paperboard and corrugated containers, and bonding wood waste.

You, too, may have a job for BCU-22 that can help improve your products and increase your profits. Write us at once for confidential analysis of your requirements. Address Dept. BA-35.

BAKELITE BCU-22 UREA RESIN
TRADE MARK
BAKELITE DIVISION

Union Carbide and Carbon Corporation 30 East 42nd St., New York 17, N.Y.

When inquiring check CP 1593 on handy form, pgs. 2-3

Announcing . . .

POLYCIZER 332

(Diocetyl Adipate)

POLYCIZER 162

(Diocetyl Phthalate)

Here are two new plasticizers that can contribute vital improvements to your vinyl and other synthetic resin and rubber products—

and reduce production costs, too!

They are free from odor, low in acidity and practically colorless. They will provide good heat and light stability, better low temperature properties, higher loading without exceeding hardness requirements.

- * For Vinyl Extrusions . . .
- * For Heavy-Loaded Sheet . . .
- * For Film Sheeting, Plastics, Organosols . . .
- * For Oil-Resistant Rubbers . . .

Write Today for Complete Data.

HARWICK STANDARD CHEMICAL CO.

AKRON 5, OHIO

BRANCHES: BOSTON, TRENTON, CHICAGO, LOS ANGELES

When inquiring check CP 1594 on handy form, pgs. 2-3

MATERIALS

Joints with resinous cement resist solvents, alkalis, non-oxidizing acids . . .

corrosion resistance good to 380°F; workability is excellent

Uses: For the jointing of acid-proof brick and tile in walls and floors which are subjected to alkalis, solvents, non-oxidizing acids, or corrosive salts at temperatures to 380°F.

Features: Has good resistance to a wide variety of chemicals. Workability is excellent, and cement does not shrink on setting.

Description: Alkor 5E is a polyfurfuryl alcohol resin base cement that is easily tooled. Gives off no fumes, smoke or obnoxious odors. Adhesion to wire cut brick is greater than 500 psi; tensile strength, 1500 psi; and compressive strength, 15,000 psi. Sets in less than 24 hours at 70°F; heat accelerates setting.

Source: The Atlas Mineral Products Company, Dept. CP, Mertztown, Pa., is the maker . . . or for more information check CP 1595 on handy form, pages 2 and 3.

Simple to lubricate hidden areas with oil spray . . .

packed in aerosol-type container, oil offers corrosion protection

Uses: Rust preventive and lubricant for spray application to metal parts in storage or production. Useful on tools, mechanical assemblies, etc.

Features: Packed in an aerosol-type container, even inaccessible areas are easily sprayed without lifting or moving parts. Oil is a polarized type that displaces any wetness on metal surfaces for corrosion protection.

Description: Handy oil spray is designated as "Gun Guard".

Source: Product of The Mitchell-Bradford Chemical Co., Dept. CP, 2446 Main St., Stratford, Conn. . . . or for more information check CP 1596 on handy form, pages 2 and 3.

Promotes esterifications where many other catalysts fail . . .

trifluoroacetic anhydride is offered in research quantities

Uses: Suggested applications include use as a catalyst in the production of esters of aliphatic or

NEW

ARCOS TENSILEND
Low Hydrogen Electrodes
for better welding
of high tensile steels

The new Tensilend Electrodes have been developed and added to the Arcos low hydrogen family to help you overcome fabricating problems on high tensile steels.

NO PREHEAT NEEDED

When welding low alloy or high carbon steels, UNDERBEAD CRACKING ELIMINATED

Stainless type coating controls hydrogen. **SUPERIOR PHYSICALS**

High ductility and impact strength. **SAVINGS IN ELECTRODE INVENTORY**

One electrode welds high strength, low alloy steels, mild steel under highly restrained conditions, or sulphur-bearing free machining steels.

ARCOS CORPORATION • 1500 South 50th St., Philadelphia 43, Pa.

Write for bulletin "The ABC's of Welding High Tensile Steels"

WELD WITH

ARCOS

Specialists in Stainless, Low Alloy and Non-Ferrous Electrodes

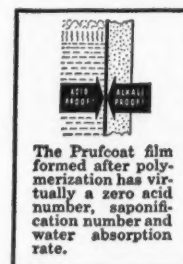
When inquiring check CP 1597 on handy form, pgs. 2-3

Corrosion Proofing

IN SOME OF AMERICA'S LARGEST PLANTS

- * "Prufcoat on floors and pump supports in sulfuric acid concentration plant—no failure after more than three years."
- * "Entire concrete building coated with Prufcoat—no trace of failure due to blistering, peeling or chipping in over five years."
- * "Prufcoat on concrete piers and steel beams subjected to muriatic acid fumes—no deterioration in over six years."

*Actual Prufcoat reports. Names of these plants upon request.



The Prufcoat film formed after polymerization has virtually a zero acid number, saponification number and water absorption rate.

In case after case, in leading industrial plants throughout the country, Prufcoat has stopped profit-eating corrosion and cut painting maintenance costs—often as much as 70%. Write for Typical Prufcoat Protecto-graph, showing actual cost comparison between painting with Prufcoat and conventional paints. Or better still, pick the toughest corrosion area in your plant, apply Prufcoat, and see for yourself the amazing results. Remember: Prufcoat saves more because it protects more. Prufcoat Laboratories, Inc., 63 Main St., Cambridge, Mass.



Applies Like Paint to Masonry, Metal, Wood

When inquiring check CP 1598 on handy form, pgs. 2-3

CHEMICAL PROCESSING

Packaging Problems Eliminated For Many Corrosive Products

by highly
chemical-resistant
DRUM LININGS

Are you having trouble packaging newly developed or corrosive products in low cost, sturdy, easy-to-ship steel containers? If so, what you no doubt require is a drum lining with the right degree of resistance to your product.

Chances are your answer lies in one of the Unichrome Drum Linings—coatings which prevent corrosion of container and contamination for a wide group of products.

A producer of vat-dye pastes which are used in textiles, for instance, packaged in glass to avoid rust spoilage. A Unichrome Drum Lining, however, made possible the use of steel containers—and has meant more economical, larger unit shipments and an end to crating expense.

A small sample of the many products which Unichrome Drum Linings withstand include: synthetic wetting agents and detergents... alcohols... vinyl latex solutions... chromic acid... trichlorethylene... gasoline... liquid sugar... oils... bleaching compounds... benzene... food products... and a host of others. Write us for information on those Unichrome Drum Linings that can help you protect your product in low cost metal containers.

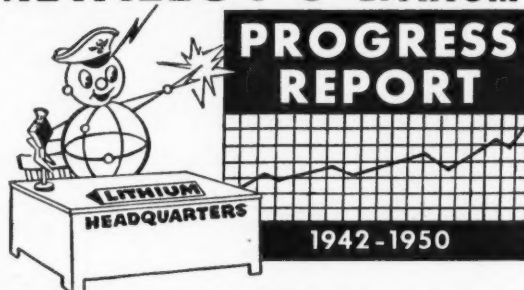
UNICHROME COATINGS FOR METALS

Products of UNITED CHROMIUM, INCORPORATED

100 East 42nd St., New York 17, N.Y. • Detroit 20, Mich. • Waterbury 90, Conn.
Chicago 4, Ill. • Los Angeles 13, Calif. • In Canada: United Chromium Limited, Toronto, Ont.

When inquiring check CP 1599 on handy form, pgs. 2-3

METALLOY'S LITHIUM



To Aid Industry, Metalloy Has Pioneered the
Manufacture of Lithium in These Forms:

Cup	1/5 lb.
Wire	1/8" dia.
Extruded Rod	1/2" & 3/8" dia.
Shot	4-8 mesh
Ribbon	1/4"
Cartridge (encased in copper tubing)	2.25, 4.50, 9.0 & 108.0 gram

Lithium Hydride Lithium Amide
Fine Ground Crystalline
Specialists, Metalloy has developed special forms of Lithium and Lithium Compounds for many specialized applications. Check this list of ever expanding LITHIUM Salts, exclusive with Metalloy:

LITHIUM
Aluminate Manganite Titanate Zirconium
Cobaltite Silicate Zirconate Silicate
As a Contribution to organized research, Metalloy's technical staff has prepared an Annotated Bibliography on the use of Organolithium Compounds in Organic Synthesis. Annual Supplements will follow.
Let Metalloy and Lithium go to work for you, today. Write Dept. CP for specific data on any of the above.
If It's Lithium—It's Metalloy

METALLOY CORPORATION
RAND TOWER MINNEAPOLIS, MINN.

When inquiring check CP 1600 on handy form, pgs. 2-3

NOVEMBER, 1950

MATERIALS

aromatic acids... promoter for acetylation and benzylation of polysaccharides... catalyst in the formation of polyesters... intermediate in the preparation of fluorinated organics.

Features: As an esterification agent it succeeds where other catalysts may give poor results. Conditions of esterification are relatively mild, and the reaction is usually complete within a few minutes.

Description: Trifluoroacetic anhydride is a pungent, water-white liquid with a boiling range of 39 to 41°C. It reacts with water instantly to form the corresponding acid.

Source: Product of Halogen Chemicals Incorporated, Dept. CP, 616 King St., Columbia 5, S. C. . . or for more information check CP 1601 on handy form, pages 2 and 3.

Forming packing to required sizes is easy procedure . . .

braided yarns of Teflon-impregnated asbestos

Uses: Packing adapts itself to services where temperatures range from minus 150 to plus 550°F, and where acids, alkalis, solvents, and corrosive chemicals are encountered.

Features: Consists of blue asbestos yarn impregnated with Teflon, braided tightly together to avoid leakage through the cross section.

Can be easily cut and formed to meet almost all required packing sizes. This eliminates the waste and cost encountered where Teflon itself must be machined or molded to special size for each packing use.

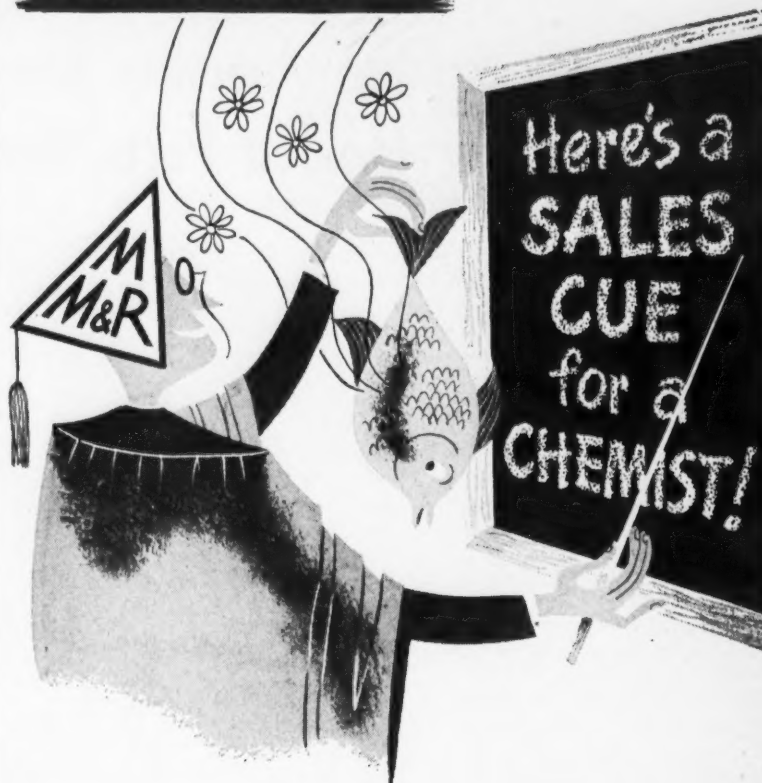
Description: Palmetto 1330 packing in the braided form is supplied in sizes from 1/8" square and upwards. Offered on 1-lb spools, 5 1/2- and 13-lb boxes, or on 25-, 50-, or 100-lb reels.

Source: Packing is a development of Greene, Tweed & Co., Dept. CP, North Wales, Pa. . . or for more information check CP 1602 on handy form, pages 2 and 3.

Shows six types of paper sacks

Four-page bulletin shows 6 types of heavy-duty, multi-wall paper sacks. Sacks have from 2 to 6 ply walls. "Dependable" is issued by Kraft Bag Corp., Dept. CP, 630 Fifth Ave., New York 20, N. Y. When inquiring specify CP 1603 on handy form, pages 2 and 3.

says the professor



A little perfume or flavor ingeniously employed will make sales soar for even the most prosaic of products! For example, MM&R chemists have added distinctive taste or aroma to food wrappings and fish liver oil, toothpicks and textiles. With an MM&R-created taste or scent personality, your product can out-sell competition, too!

**Think it over—
then, call on
MM&R**

Write Dept. C-4

Builders of PRODUCT PREFERENCE
through QUALITY ESSENTIAL OILS,
PERFUMING MATERIALS
CONCENTRATED FLAVORS and
exclusive MM&R DEODOR-SCENTS
SINCE 1895



MAGNUS, MABEE & REYNARD, INC.
SINCE 1895... ONE OF THE WORLD'S GREATEST SUPPLIERS OF ESSENTIAL OILS
16 DESBORRES STREET, NEW YORK 13, N. Y. • 221 NORTH LA SALLE STREET, CHICAGO 1, ILL.

Los Angeles: Brown Corp. • Seattle, Portland, Spokane: Van Waters & Rogers, Inc. • San Francisco: Brown-Knecht-Heimann Co.

When inquiring check CP 1604 on handy form, pgs. 2-3

Rubber-phenolics Are Replacing Straight Phenolics in Molded Parts Needing More Impact Strength

IN A variety of cases, molded phenolic parts have been found to be lacking in resistance to shock, vibration and fatigue. Because of this, they have not been suitable for applications involving severe abuse. To overcome this limitation, the rubber-phenolic compositions were developed. These materials are being used in many instances where straight phenolics failed, and apparently do not sacrifice the good moldability and handling ease of the conventional phenolic material.

Figure 1 shows a soldering gun that has a rubber-phenolic housing. This housing minimizes breakage which may occur in shipping and during rough handling by user. The molding compound possesses the heat resistance and good moldability of woodflour filled phenolic resins and has been further strengthened by the toughness and resiliency of rubber. This type of housing costs less to make than conventional housings.

The "abuse resistance" and excellent insulating characteristics of the compound make it very satisfactory for this application. The danger of cracking or breaking the housing if the gun is dropped or struck by falling tools is greatly reduced. Housing is pleasant to touch, has a good appearance, and its excellent thermal shock resistance permits wide and rapid temperature change without danger of cracking.

The base on the air circulator illustrated in Figure 2 is made of a rubber-phenolic woodflour filled compound. Since these circulators rest on the floor, they are often subjected to shock by accidental kicking or impact with furniture; also to rough handling in shipping. The base acts as the motor support, and the foot-operated switch is mounted on one of the legs.

This type of rubber-phenolic compound was specified for this application because of its handsome appearance, unusual strength and durability. The molder obtained low-price parts by using the compound. The parts were found to have the toughness and resiliency ordinarily associated with conventional flock and fabric filled phenolics. However, the hand preforming, bulk loading and slow, tedious finishing operations which are required with regular impact grade phenolics are eliminated because woodflour filled rubber-phenolics can be preformed, molded and finished like regular woodflour filled phenolics.

This woodflour filled rubber-phenolic compound is available in brown or black.

Synthetic rubber, American-made, adds the resilience and toughness to the phenolics (these resins are inherently strong but brittle). Natural rubbers are not compatible. As the rubber content is increased, the resilience and abuse resistance of the compound are increased. The blend of rubber and resin can be used with different fillers to obtain a variety of heat and strength characteristics, as is the practice with the straight phenolic.

Drop hammer tests were devised to compare abuse resistance of rubber-phenolic and straight phenolic compositions

Increased resilience is obtained, but good moldability and handling ease are not sacrificed



Figure 1—Soldering gun has housing molded of rubber-phenolic material



Figure 2—Base of air circulator is made of woodflour filled rubber-phenolic

containing various fillers. These tests, simulating abuse encountered in actual use, revealed that the rubber-phenolic withstands shock loads of $1\frac{1}{2}$ to 15 times greater than that of phenolic alone before complete failure, and $1\frac{1}{2}$ to 8 times greater before first signs of failure.

Thermal shock resistance is also good. Rubber-phenolic compounds molded around large metal inserts withstand thermal shock over a range of -40 to 120°C without cracking.

Some other advantages are: low-cost assembly operation by use of self-tapping screws and pressed-in inserts; possibility of thinner cut-off, meaning less hand-filing or spindling; the woodflour filled rubber-phenolic is adaptable to automatic press operation. Important too is the fact that the material does not shatter when first overstressed. After first showing signs of cracking, the parts can often be used until replacements have been obtained.

Handling Characteristics

General handling characteristics are similar to those for standard phenolic molding compositions. The rubber-phenolics are molded in a similar manner, and are capable

of being preheated by electricity, steam or infrared. They can be molded without preheating, but preheating has a marked effect on cure reduction.

In dielectric heating, the material should be preheated to the point where it actually smokes, a practice that would be expected to ruin the straight phenolic materials. Chrome-plating of mold surfaces is recommended.

Rubber-phenolics are not a cure-all. There are one or two drawbacks that prevent universal application. The heat-distortion point is lower by about 25°C than that of the straight phenolic. Moisture-absorption is higher, but the electrical characteristics are not as adversely affected by the higher absorption as is the case with straight phenolic material. Then too, the appearance of an immersed rubber-phenolic part is not as greatly affected as the appearance of a straight phenolic part after the parts have been immersed for equal periods of time.

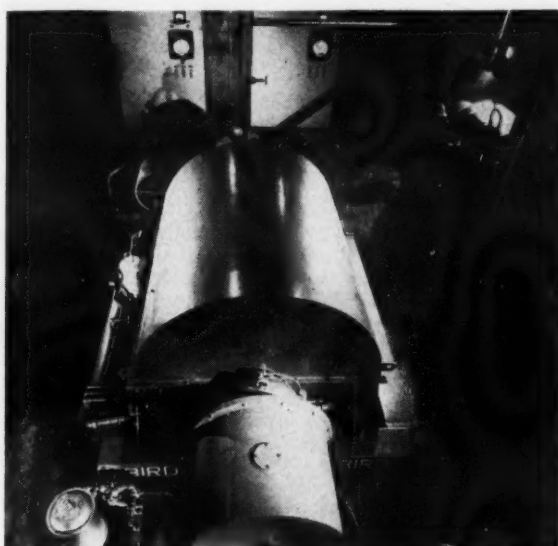
Research is being conducted to improve the moisture-absorption characteristics.

(Summarized from data furnished by General Electric Company, 1 Plastics Ave., Pittsfield, Mass.)

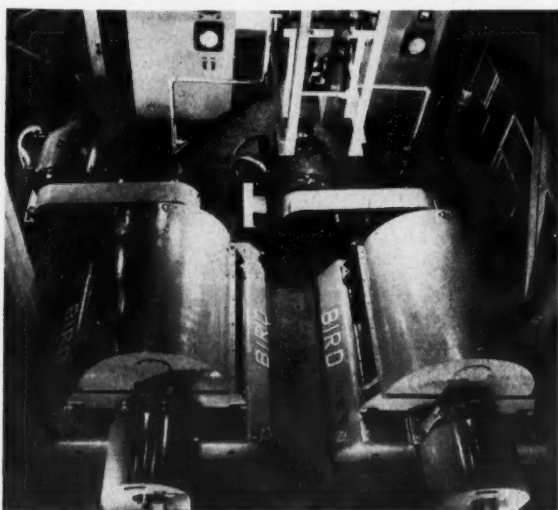
Fine-size Coal Is Being Dewatered by Continuous Centrifugal Filters

Huge machine recovers 60 tons/hr of coal dry enough to flow freely; filtrate is clear enough for re-use

A CONSIDERABLE number of coal preparation plants have found a place for the Bird continuous centrifugal filter. These machines are being used for dewatering the finer particles of coal (smaller than $\frac{1}{4}$ ") that pass through the screens in the washing process. The fine coal leaving the filter is so dry that it does not ball up, and it discharges freely from belt conveyors carrying it direct to cars. (Continued on page 42)

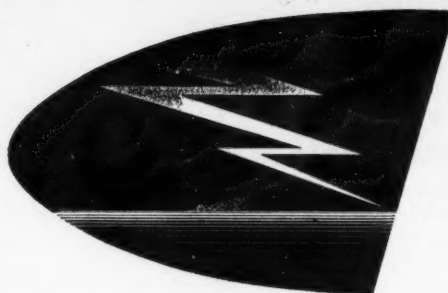
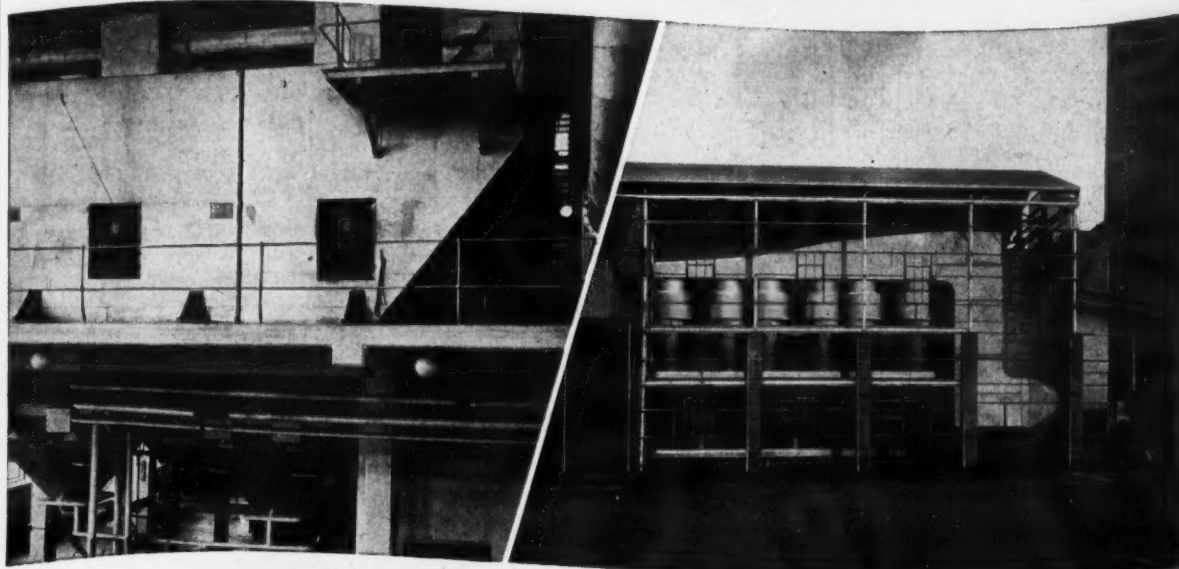


This large continuous filter is handling all the minus $\frac{1}{4}$ " washed coal at a big Kentucky mine



These two filters are used as "polishers". They receive the overflow from the primary filter (shown in the other illustration), and remove the minus 48 mesh slimes before the water is returned to the process. It is undesirable to have these high-ash fines present in the good coal

fines fumes and 'ficiencies



IN DUST RECOVERY

The advent of the Buell 'SF' Electric Precipitator, as a running mate with Buell's far-famed van Tongeren Cyclones, is significant. It moves Buell into a forefront position for consultation on dust collection...

whatever the nature or fineness
of the material to be recovered.

Buell-certified performance, on either type of equipment, or both in tandem, will be in terms of fractional efficiencies for the various classifications of micro-fines handled. The data will be factual, conservative—and demonstrably accurate.

In building the Buell 'SF' Precipitator for ultra-fine dusts, fumes and vapors, modern-design refinements—such as StediFlow dust-fall—have been incorporated. Experienced plant engineers in particular will want to be informed about these innovations. Both 'SF' Precipitator and van Tongeren Cyclones are peak-efficiency-rating devices worthy of the Buell name and our customers' confidence.

Inquiries are invited. Write us your specific problem, or for a copy of our book on recovering valuable or nuisance dusts. Buell Engineering Company, 70 Pine Street, Suite 5026, New York 5, N. Y.

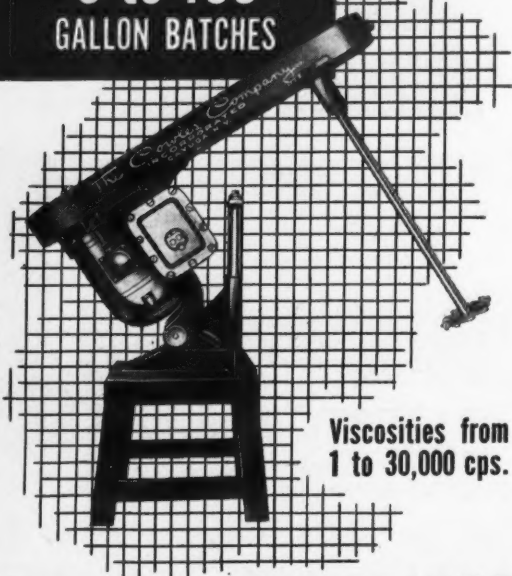
We'll be at BOOTH 72
New York "POWER SHOW"
Nov. 27th — Dec. 2nd

buell

Engineered Efficiency in Dust Collection

When inquiring check CP 1605 on handy form, pgs. 2-3

DISSOLVES or DISPERSES 2 to 20 Times
5 to 100
 GALLON BATCHES FASTER...



Viscosities from
 1 to 30,000 cps.

Cowles DISSOLVER (Model 7VT)

You've heard that Cowles dissolvers are cutting minutes and even hours from processing cycles. Perhaps you've felt that you didn't need all that capacity. But here's a new Cowles model—the 7VT—that will handle production batches as small as 5 gallons, or as large as 100. It will dissolve, disintegrate, produce true solutions, emulsions or colloidal suspensions with any solvent, solute, dispersed or continuous medium ranging in viscosity from 1 to 30,000 centipoises.

WIDE CHOICE OF SPEEDS AND IMPELLERS—A selected group of stainless steel impellers is supplied with each unit to handle the viscosities and flow characteristics of the materials regularly processed. Other impellers for special requirements can be had on short notice. Horizontal movement of the drive elements permits wide variation of sheave ratios and speeds, adding further flexibility to the machine for a wide range of production operations as well as for laboratory and pilot work.

OTHER FEATURES—An elevating screw moves the motor, bridge and drive assembly through a vertical range of 11 inches, adjusting for containers of different depths. The bridge support can be tilted through an angle of 60° for quick removal of the impeller from containers. Two compression springs act as snubbers and boosters in tilting the bridge. A 5 hp. explosion-proof motor and spark-proof V-belt provides safety when processing volatile materials. The stand and motor starter as illustrated are optional equipment, moderately priced.

Find out now the big savings in time, and possibly in residual losses, which the Cowles Dissolver can effect with your materials. Write or wire, and we'll tell you size of sample to ship for detailed test run in our laboratory.

SPEEDS UP DISSOLVING AND DISPERSING CYCLES OF:

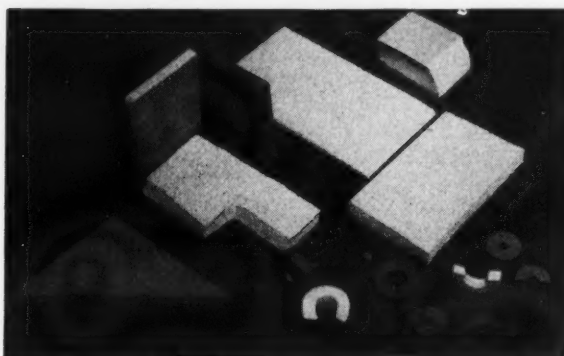
Gum solutions
 Nitro-cellulose
 Resins
 Lacquers
 Enamels
 Paints
 Plastics
 Biologicals
 Coatings
 Explosives
 Inks
 Various chemical agents

The Cowles Company
 INCORPORATED
 1011 TRACKSIDE, CAYUGA, N. Y.
 Associates: Sharle Bros. Machine Co., Division of Black Clawson
 Co., Middleton, Ohio; Alexander Fleck Ltd., Ottawa, Ont.

Silicone Cellular Rubber Withstands Heat, Cold, Flexing, Compression

Has chemical stability in sheet, cord, strip, tube,
 die-cut shape and molded forms

MOLDED silicone rubber of uniform cellular composition has been perfected, and is being furnished in sheets, cord, strips and tubes, die-cut shapes and molded forms. Cell structure may be of chemically blown interconnecting cells or non-interconnecting closed cells. Degree of perfection of this chemically blown silicone rubber is unusual. In effect, the process yields a cellular rubber indistinguishable to natural cellular rubber in all considerations of uniform cell structure, compression, flexing, tensility and softness—except that all of these characteristics are retained at the high and low temper-



Die-cut, sheet and molded silicone sponge rubber

Contains current list of organic chemicals

More than 2400 organic chemicals are alphabetically listed in 32-page catalog containing company's regular line of chemicals plus several hundred new compounds. "Fine Organic Chemicals, List No. 9" is issued by The Matheson Co., Inc., Dept. CP, East Rutherford, N. J. When inquiring specify CP 1608 on pages 2 and 3.

Benzene from petroleum supplements normal supply . . .

should fill in when interruptions in coal or steel create shortages in normal benzene supply

Until recently, benzene was available only as a co-product in the manufacture of oven coke used chiefly for metallurgical purposes. Accordingly, coke requirements established a ceiling on benzene production, and interruptions in either the coal or steel industry tended to create an immediate benzene shortage.

For the first time, benzene is now being produced from

petroleum at Texas City, Tex., where a plant has been established with an annual capacity of 5-million gallons. Most of this probably will be used in the Gulf Coast area, which consumes about 40-million gallons of benzene annually. (Bureau of Mines, Washington, D.C.)

ature extremes which have been a cause of natural cellular rubber's loss of efficiency in the past. This maker's best heat resistant compound of natural rubber deteriorates after one day at 300°F, as compared to little change in their silicone cellular rubber after 31 days at 300°F. Even as much as 7 days aging at 400-425°F reveals little change in the softness of the silicone cellular rubber.

At the other end of the temperature scale, silicone cellular rubber retains its efficiency down to -70°F as compared to a compression change of 25-40% at -40°F for the company's average natural cellular rubber. The new silicone cellular rubber is described as possessing such other characteristics as chemical stability superior to that of natural cellular rubber and non-toxic properties especially valuable in processing products for human consumption. Also, the new type rubber is less than half the weight of mechanical rubber. This may be regarded as an important cost factor in considering all silicone cellular rubber applications. These include insulation against shock, vibration, sound and the passage of liquids, air or heat where extreme degrees of temperature disqualify the use of other synthetics and natural cellular rubber.

Silicone cellular rubber in various forms is being produced by The Sponge Rubber Products Company, Dept. CP, Shelton, Conn. . . . or for more information check CP 1607 on handy form, pages 2 and 3.

Odor control regulations met by use of canisters of activated carbon . . .

are vital part of air recovery system used at municipal garbage transfer station

Activated carbon canisters enable the refuse transfer station in Washington, D. C., to comply with ordinance that no dust or odors be allowed to escape. Some 300,000 cubic yards of refuse and garbage are delivered to this station annually.

All operations take place indoors, the municipal trucks driving up ramps and dumping their loads into gondola cars and truck trailers. The surrounding air is sucked up by huge fans and thence drawn through dust cyclones and banks of spun glass filters. If odorous, it

CHEMICAL PROCESSING

is then put through "small collectors", hundreds of porous canisters containing activated carbon.

In spite of the vital part the dust and odor control equipment plays in this \$918,700 plant, its cost ac-



Canisters soak up odors at refuse station

counted for but 4% of the total, or \$37,400. (Activated carbon canisters are product of W. B. Connor Eng'g. Corp., 114 East 32nd St., New York 16, N. Y.)

Canvas, leather, and cordage are protected from mold . . .

active agent in treating coat is copper 8-quinolinolate

Canvas bucket and webbing at left in illustration below have been protected against mold decay by one of the Cunilates developed for the Air Force by Scientific Oil Compounding Company, Inc., of Chicago. Similar items



Notice how untreated items at right were attacked by mold in 28-day soil burial test

at right almost completely disintegrated after 28-day soil burial test. Cunilates are available in permanent and non-toxic solutions and emulsions, and have been approved for leather, canvas, cordage, and plastics. (Active ingredient in Cunilates is Milmer 1, a copper 8-quinolinolate developed by Monsanto Chemical Company, St. Louis 4, Mo.)

GARLOCK PACKINGS and GASKETS

made of *Teflon**



Extremely Inert to Chemicals; Heat Resistant; Tough; Durable

GARLOCK packings and gaskets made of *Teflon* solve the problem of sealing against acids and chemicals of all kinds.

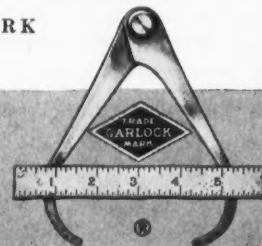
These *Teflon* products, fabricated in the GARLOCK factories, are unaffected by any acid and are highly resistant to all organic solvents and alkalis. They operate at temperatures from below -90° F. up to $+500^{\circ}$ F. and have high mechanical strength and a low coefficient of friction within that temperature range.

For use on valves, pump rods or shafts and any other equipment in the chemical industry, GARLOCK produces several types of braided and molded *Teflon* packings. For gasketing flanged joints of all kinds, including glass and porcelain flanges, *Teflon* envelope gaskets or solid *Teflon* gaskets are available in required sizes and shapes.

To avoid frequent shut-downs and reduce your packing costs, use GARLOCK packings and gaskets made of *Teflon* on all your equipment handling acids or chemicals. *Write for pamphlet.*

THE GARLOCK PACKING COMPANY, PALMYRA, NEW YORK
In Canada: The Garlock Packing Company of Canada Ltd., Montreal, Que.

GARLOCK



When inquiring check CP 1609 on handy form, pgs. 2-3

IDEAS

Coal Dewatering (Continued from page 39)

In some plants, feed slurries to the filters contain about 25% solids, and the particle sizes in the feed vary from $\frac{1}{2}$ " down to less than a micron. Sometimes the filter feed contains as much as 50% of the total coal tonnage.

The filters are big . . . bigger than most of continuous centrifugal filters used in the chemical process industries. They handle feeds up to 500 gpm and deliver up to 60 tons of coal per hour. Moisture-content of coal leaving the units depends upon the relative proportion of extreme fines (minus 200 mesh), but the coal is reported to be as dry as that obtained by any combination of mechanical equipment previously employed. For instance, when the minus 200 mesh fines average 10%, the surface moisture retained in the cake runs 8.0 to 8.5%.

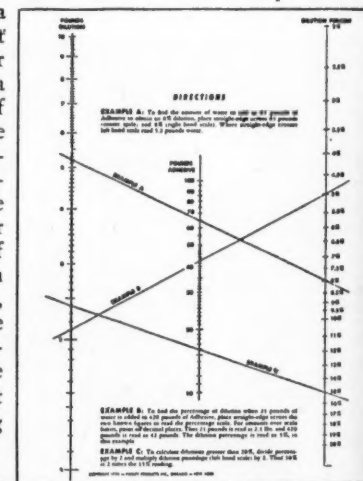
Filtrate from a system of filters is so low in solids-content that a closed water circuit can be used. Maintenance is reported to be required infrequently.

(Information furnished by courtesy of the Bird Machine Company, South Walpole, Mass.)

Precise dilution of adhesives according to directions aided by chart . . .

altering technical ready-to-use resin-emulsion and similar adhesives can lead to failures

Adhesive failures that are traceable to unauthorized additions, dilutions or other tampering with formulas may be avoided if users follow prescribed procedures. A chart (see illustration) is now available that simplifies adherence to such directions. It makes it possible to determine, in a minute, the exact amount of water to be added to a given amount of adhesive to achieve any desired percentage. For example, to find the amount of water to add to 65 lb of adhesive to obtain an 8% dilution, place straight edge across 65 lb (center scale). Where scale crosses left hand scale, reading is 5.2 lb water.

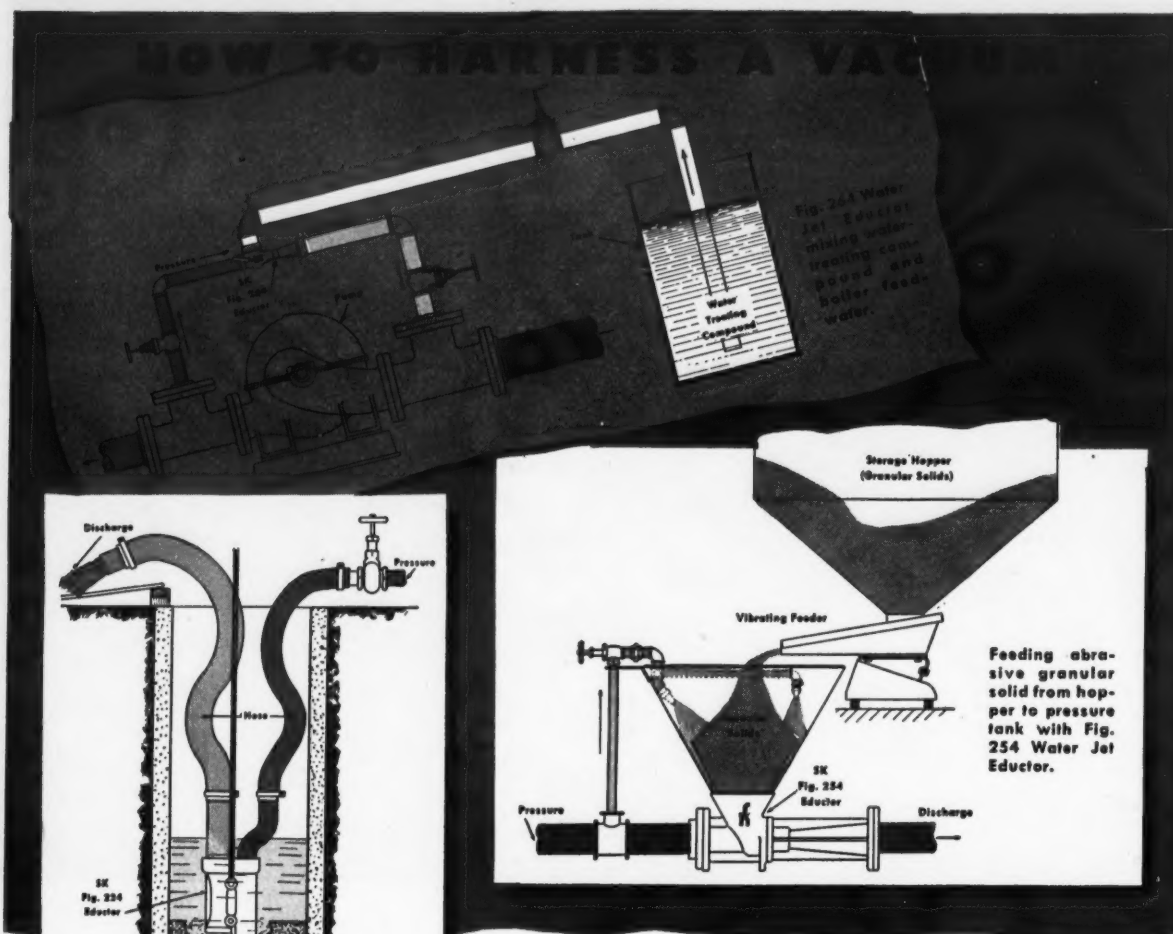


Adhesive dilution calculator

Another typical application is to find percentage of dilution when 21 lb of water are added to 420 lb of adhesive. Here, place straight edge across two known figures to read the percentage scale. For amounts over scale limits, point off decimal places. Thus, 21 lb is read 2.1 lb and 420 lb is read 42 lb. Dilution percentage is read as 5% in this example. Also, to calculate dilutions greater than 20%, divide percentage by 2 and multiply dilution poundage (left hand scale) by 2. Thus, 30% is 2 times the 15% reading.

Adhesives to-day are specialized formulas for specified applications. Problems imposed by other than the proper dilutions are most apparent in the synthetic resin emulsions. Today's technical adhesives which include many starch, animal glue, casein base types, resin emulsions,

CHEMICAL PROCESSING



Clearing sludge out of tank with portable Fig. 224 Mud Educteur.

WE'VE been doing just that for years, with SK Water Jet Eductors. A versatile pump and mixer for all types of fluids, the SK Water Jet Educteur derives its power from partial vacuum. Vacuum, formed in the suction chamber of the Educteur, is created by the action of the pressure liquid.

Putting that vacuum to work for *you*—at a saving—is our business.

The three examples above show how SK Water Jet Eductors are making tough jobs easier in a variety of industries. Since Eductors have no moving parts, maintenance and operating costs are extremely low. And their reliability makes SK Water Jet Eductors ideal for minimum supervision in hard-to-reach installations.

SK engineering can tailor a standard or special Water Jet Educteur to your problem. Mixing, blending and pumping of liquids, gases, slurries or solids—creating vacuum or pressure—are all within our scope. And SK manufacturing can provide a Water Jet Educteur in the size and material you require.

New Bulletin 2-M describes SK Water Jet Eductors, from specifications to applications. Write today for *your* free copy, or for SK engineering assistance on special problems.

SCHUTTE and KOERTING Company

Manufacturing Engineers

1173 THOMPSON STREET • PHILADELPHIA 22, PA.
JET APPARATUS • HEAT TRANSFER EQUIPMENT • STRAINERS • CONDENSERS AND VACUUM PUMPS • OIL BURNING EQUIPMENT • ROTAMETERS • FLOW INDICATORS • RADIATION TUBES • VALVES • SPRAY NOZZLES AND ATOMIZERS • GEAR PUMPS • DESUPERHEATERS

When inquiring check CP 1610 on handy form, pgs. 2-3



New Bulletin 2-M describes all types of Water Jet Eductors, with specifications and applications. Write today for your copy.

Why put up with this?

when this...

COSTS SO MUCH LESS IN THE LONG RUN!

● Yes, it's in the long run that **ELECTRUNITE** Stainless Steel Tubing really pays off. In all types of processing equipment—where heat or corrosion-resistance play a part in limiting the life of ordinary tubing—the extra cost of this long-lasting tubing is an inexpensive investment in long-range economy.

Send *today* for a free booklet which gives the complete story about **ELECTRUNITE** Tubing and Pipe made of Republic **ENDURO** Stainless Steel.

REPUBLIC STEEL CORPORATION
STEEL AND TUBES DIVISION • CLEVELAND 8, OHIO
Export Dept.: Chrysler Building, New York 17, New York



ELECTRUNITE®
STAINLESS STEEL TUBING AND PIPE

When inquiring check CP 1611 on handy form, pgs. 2-3

NOVEMBER, 1950

IDEAS

and latex cements are usually supplied in ready-to-use consistency. Dilution must be in accordance with maker's directions. Most of them can take a certain percentage of added water, but reductions should be effected in small amounts, 1 or 2% at a time, while constantly stirring and testing to avoid over-dilution. Often, a dilution of $\frac{1}{4}$ of 1% can mean the difference between success and failure and there are many such cases on record. (Calculating chart has been prepared by Paisley Products, Inc., 1770 Canalport Ave., Chicago 16, Ill.)

Diminishing metal supply finds plastics ready as replacements . . .

situation closely parallels that of the last war, but now even plastics are growing scarce

As in the last war, plastics will possibly take over many fields normally filled by metals; in fact, some of the available metal supply is already being held back for military needs. Butyrate and ethyl cellulose are generally regarded as the most suitable plastics for replacing metals. While the latter is superior in dimensional stability, it cannot be extruded with the high gloss of the butyrate. To complicate matters still further, even the plastic replacements must often be of a semi-essential nature, simply because they themselves are beginning to be in short supply. (Summarized from information given by Anchor Plastics Company, New York)

Organic chemicals made to order . . .

synthesis service will supply organics not readily available through commercial channels

Establishment of a new source of organic chemicals will come as good news to those manufacturers and processors who have found difficulty in obtaining specialized items and compounds. This service is being established to fill the increasing demand for additional "custom" synthesis facilities for industry and research.

Work already being undertaken includes synthesis of chemicals that have not been characterized or reported in chemical literature. (Summarized from information presented by Atlantic Research Corporation, 812 N. Fairfax St., Alexandria, Va.)

Combines sawdust, corncobs into polishing medium . . .

macerated cobs added to minute cubes of dried hardwood for use in tumbling barrels

Recently introduced polishing medium for all metals, glass, plastics, and other materials is composed of hardwood (maple) in cube form to which is added macerated corn cobs. Both materials are thoroughly screened and aspirated to remove dust. The mixture combines the high absorption of the sawdust with the tougher polishing action of the pulverized corn cobs. Through use of the mixture, drying and polishing of metals, plastics, and other materials may be accomplished regardless of size in a minimum of time and at low cost, provided they can be handled by tumbling barrels. A variety of mixtures and particle sizes are available. (Kube-Kut, Inc., 625 Midland Ave., Garfield, N. J.)

Easy way to make \$1000⁰⁰

Cost of a New Elgin "Double-Check" Softener	\$1205.00
Cost of making your present softener into a "Double-Check"	\$130.00
Cost of added zeolite	71.00 201.00
Savings	\$1004.00

Get added
soft water
without
buying a
new
softener



Before remodeling—
conventional design re-
stricts size of zeolite
bed.



After remodeling—
Elgin "Double-Check"
manifolds permit deeper
bed to give up to 44%
more soft water from
same size softener using
same type zeolite; still
greater increase if old
type zeolite is replaced
with Elgin high-capacity
zeolite. Ask for
details.

This simple arithmetic shows the saving you make when you modernize your present water softener the Elgin way. If you have a zeolite softener of the size assumed in this example it would cost you exactly \$1205.00 to replace it with the advanced Elgin "Double-Check" Softener—an excellent idea if it is beyond modernization, but—

If not, as little as \$201.00 will pay for equipment that will make it the equivalent of a new \$1205.00 Elgin Softener. And remember: The thousand dollars is saved in initial cost alone; the greater capacity and lower operating costs of your modernized softener will quickly pay off its remodeling cost and then pile up additional savings year after year.

Ask for complete information

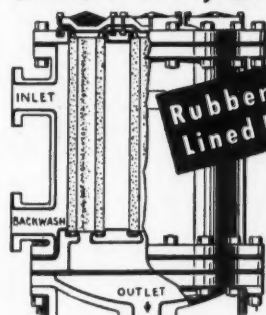
Elgin Softener Corporation

180 N. Grove Avenue
Elgin, Illinois

When inquiring check CP 1612 on handy form, pgs. 2-3

Get Crystal Clear FILTERING of Corrosive Acids

Cut Filtering Costs with



ADAMS
PORO-STONE
FILTERS

1 Easy cleaning, without
dismantling, by simple
backwashing.

2 Safe—eliminates toxic fumes and
workers' contact with dangerous acids.

3 Filter shells—rubber or lead lined.
Filter tubes inert to acids or alkalis.

Write for Bulletin 9348

R. P. ADAMS CO., Inc. 243 E. PARK DRIVE
BUFFALO 17, N. Y.

When inquiring check CP 1613 on handy form, pgs. 2-3

IDEAS

Gears with 20° pressure angle have less contact pressure, more contact area . . .

gears replace 15° tooth form as standard on maker's equipment

Gears designed to reduce wear and vibration are now standard equipment on Allis-Chalmers' line of mills, kilns, coolers, and dryers. Gearing has tooth profile generated as a true involute with 20° pressure angle, long addendum pinion, and short addendum spur gear. It replaces the 15° tooth form previously used.

Design has a number of advantages. With 75% more tooth area in contact, wear is distributed over a greater space. Its use precludes interference between gear and pinion. Because of its involute profile, gear is revolved at a uniform velocity. Tooth contact pressures are reduced, permitting better lubrication, and much tooth contact is rolling rather than sliding.

The 20° pressure angle gives 25% stronger pinion tooth per inch of pinion face for any given pitch diameter, and the long addendum pinion gives more overlapping action while eliminating undercutting of pinion teeth. (Allis-Chalmers Manufacturing Company, 1151 S. 70th St., Milwaukee, Wis.)

Specifies metal hose and couplings

Design and maintenance engineers will be especially interested in 8-page catalog giving latest specifications on line of flexible metal hose and couplings.

Catalog is divided into 4 convenient sections. Section 1 includes interlocking high pressure hose, air jacketed hose for diesel exhausts, and conveyor hose for ventilating and exhausting.

Section 2 includes seamless high pressure hose and diesel exhaust hose. Section 3 is concerned with metal-lined and synthetic rubber gasoline hose, while section 4 presents couplings.

Added are U. S. Navy Dept. test table for bronze and steel hose; data on bending diameters and hydrostatic bursting pressures; and series of installation diagrams.

Catalog 500 is issued by Atlantic Metal Hose Co. Inc., Dept. CP, 123 W. 64th St., New York 23, N. Y. When inquiring specify CP 1614 on handy form, pages 2 and 3.

For more information on product at right, specify CP 1615 . . . see information request blank between pages 2-3. ➡



TYPE 149

Ample Power for Direct Action ... Easily Adapted to Remote Control

For Quick Solutions of Tough Problems, Count on Climax!



You'll be amazed at the ease with which a BS&B Controls Engineer can end your control worries. Strategically located, he is always ready to give you complete, understanding service . . . in strict confidence. Check the coupon below for the BS&B Controls Man nearest you.

You have a leverage ratio of 18 to 1 forming the connection between float and inner valve plug in the valve body of the BS&B-Climax 149 Feed Water Regulator. This means ample power to operate against differentials across the valve as usually encountered. Designed to serve as Feed Water Regulator or as Liquid Level Control. Combines the economy with the proved efficiency of Climax top-and-bottom-guided, reversible valve bodies.

Employ the type 149 float cage for direct control of level, remote of valves or instruments through air pilots, and operation of alarm systems or signals through Mercoid switches. Yes, sir . . . you can't beat this BS&B-Climax Control for versatility!

BLACK, SIVALLS & BRYSON, INC.
Climax Controls Division, Section C1-4-11
7500 E. 12th St. Kansas City, Mo.

Send complete information on following items, as checked: ☐ Type 149 Feed Water Regulator ☐ Type 320 Pressure Reducing Regulator ☐ Type 88 Diaphragm Valves ☐ Type 850 Displacement Liquid Level Controllers ☐ Have Sales Engineer call. Also send name of nearest BS&B Controls Man.

NAME _____
TITLE _____
COMPANY _____
STREET _____
CITY _____ STATE _____

Models available . . . in high tensile cast iron for pressures up to 250 psi, cast steel for up to 500 psi.

Complete description, diagrams, specifications and applications are ready for you. Mail the coupon . . . today!

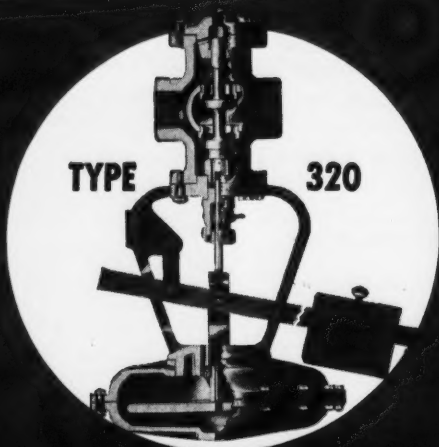
Climax Controls Division
BLACK, SIVALLS & BRYSON, INC.
KANSAS CITY • OKLAHOMA CITY • TULSA

Efficiency at a Real Saving

New BS&B Climax WATER REGULATOR

PRESSURE REDUCTION OR BACK PRESSURE REGULATOR

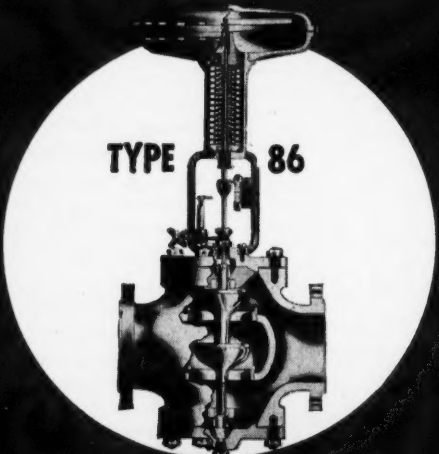
Type 320 Regulators allow sensitive pressure control in vapor-vacuum and low-pressure steam heating systems. Weight loaded, pressure operated, diaphragm actuated. Built for long life under rugged conditions.



TYPE 320

DIAPHRAGM CONTROL VALVE

Type 86... famous the world over for high lift, accurate control, ease of maintenance. Fully reversible in the field. Super-polished lower stem for minimum friction. Wide rangeability. Check coupon for catalog.



TYPE 86

DISPLACEMENT LIQUID LEVEL CONTROLLERS

No leakage... no stuffing box... no friction problem! That's the Type 850, a BS&B-Climax-developed exclusive. Ideal wherever liquid level control involves exacting and wide range control. Shown here with Type 1410 BS&B-Climax Control Pilot. Complete catalog available... send coupon now.



Patent No.
2,263,771

TYPE 850

IDEAS

Simplified viscosity test for cellulose...

saves time, labor, and compares quite favorably with older method

An improved method for determining quality of cellulose is a simplification of the cuprammonium viscosity determination, which is widely used as an aid in determining the effect of light, heat, and chemical reagents on cellulose in paper and textiles. Advantages of the procedure are ease of preparation of the cuprammonium reagent and a reduction in sources of error during reaction.

The cuprammonium test is one of the most important in cellulose chemistry. It involves the measurement of the time required for a definite quantity of a solution of cellulose in cuprammonium hydroxide to flow from a calibrated viscometer. This time of flow, usually measured at 20°C on a solution containing 0.5% cellulose, is related to the viscosity of the solution and therefore to the quality of the cellulose.

Cuprammonium is usually prepared by the air-oxidation of metallic copper in ammonium hydroxide. This is slow, and is complicated by formation of ammonium nitrate, lessening usefulness of the solution. As the reagent is unstable at room temperature, it must be stored at 0°C. Another disadvantage in the cuprammonium test, as ordinarily carried out, is the necessity for using special apparatus to exclude air during the solution of the cellulose, since cellulose is sensitive to oxidation.

These difficulties are now eliminated in both stages of the process. The cuprammonium reagent is first prepared by dissolving cupric hydroxide in ammonium hydroxide in an ice bath. This easy method of preparation makes storage unnecessary. Cellulose is then dissolved in the reagent, with the addition of cuprous chloride and copper wire to prevent air oxidation.

Rubber-stoppered Erlenmeyer flasks are convenient for this purpose, and mechanical agitation facilitates the process. The time of flow of the resulting solution is measured in a viscometer enclosed in a glass jacket, through which water is pumped from a constant temperature bath. (Method devised by H. F. Launer and William K. Wilson of National Bureau of Standards, Washington, D. C.)

Fabrication service offered on stainless steel parts

Eight-page bulletin describes company's facilities for the fabrication of stainless steel machinery and equipment. Company is prepared to engineer and build complete processing systems or any integral parts of such systems to fit specific requirements. Shown in bulletin are examples of typical products.

"Stainless Steel Fabrication" is issued by Sims Metal Works, Dept. CP, West Point, Georgia. When inquiring specify CP 1616 on handy form, pages 2 and 3.



Assures Positive Distance Reading of Liquid Levels

JERGUSON TRUSCALE GAGE

THE modern design JERGUSON TRUSCALE GAGE gives new accuracy for reading of liquid levels in boilers, deaerating tanks, etc.

Here is the distance reading gage which incorporates all of the newest engineering features! The Jerguson Truscale has exceptional sensitivity, with the ability to register changes as small as 1/2 of 1% of range! The translucent dial scale is clearly lighted from behind, and is easy to read.

The Truscale Gage may be equipped with positive alarm system. Lights flash and horns sound at specified key points when liquid level falls dangerously low or rises too high. Foolproof anti-surge mechanism for use on ships. Available for panel, pedestal, or wall mounting. It will pay you to investigate.

JERGUSON TRULEVEL GAGE

Hydrostatic type distance reading gage with inverted U-tube manometer. Water level always visible with space above showing brilliant red. Built-in feature makes possible checking of gage accuracy in few seconds.

Write today for free illustrated DATA UNITS on Jerguson Truscale and Trulevel Gages

JERGUSON

Gages and Valves for the Observation of Liquids and Levels

JERGUSON GAGE & VALVE COMPANY

100 Fellsway, Somerville 43, Mass.

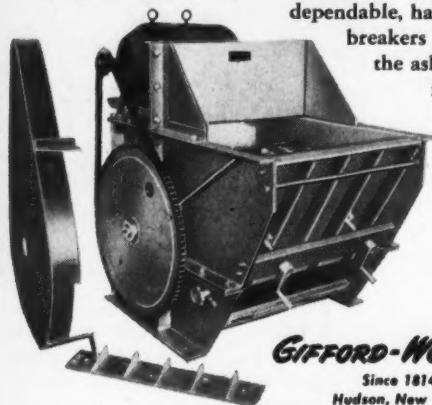
Representatives in Major Cities
Phone Listed Under JERGUSON

When inquiring check CP 1617 on handy form, pgs. 2-3

VOLUME CRUSHING WITH G-W'S NO. 480 BREAKER

G-W's No. 480 Heavy Duty Breaker crushes up to 100 tons of solidified chemicals an hour! Any semi-friable product can be broken-up, in sizes from 1/2 inch to 5 inch maximum. Adjustable fine and coarse comb plates permit variable product size control. The body of the breaker is fabricated of heavy steel plate, flanged and ribbed for extra strength. No. 490 Heavy Duty Breaker, with smaller capacities, is similar in design and construction.

Complete information on G-W's complete line of dependable, hard-working breakers is yours for the asking. Write for Bulletin 482 today.



GIFFORD-WOOD CO.

Since 1814
Hudson, New York
420 Lexington Ave., New York 17, N. Y.
565 W. Washington St., Chicago 6, Ill.
Railway Exchange Bldg., St. Louis 1, Mo.

7168

When inquiring check CP 1618 on handy form, pgs. 2-3

GAYCO CENTRIFUGAL SEPARATORS

GAYCO Separators, equipped with the adjustable centrifugal sizing fan — an exclusive GAYCO feature — make closer separations. Closer separations bring about higher production through efficient removal of the fines made by the mill. Closer separations bring about higher quality products by eliminating all undesirable oversize.

"TIMKEN BEARING EQUIPPED"
GAYCO brings you all these:



Range 60
to 400
mesh

Greater
capacity
25 to 30%
greater
production

Cleaner
Tailings

Uniform
Products

Slow speed for
slow wear

Quick and easy
adjustments

If you have an exceptionally hard separating problem,
TRY THE GAYCO.

Universal Road Machinery Co.

Robert M. Gay-Division

Factory and Laboratory, Kingston, N. Y.

117 LIBERTY STREET

NEW YORK 6, N. Y.

Canadian Representative: F. H. Hopkins & Co., Ltd.,

8500 Decarie Blvd.,

Montreal, Que.

When inquiring check CP 1619 on handy form, pgs. 2-3

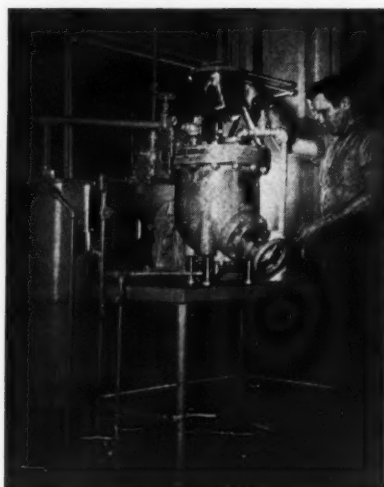
BUFLOVAK-DOPP PROCESSING KETTLES Efficiently Serve Many Industries

YOUR product can be processed in this Dopp Kettle that is installed in the BUFLOVAK Research and Testing Laboratory.

Larger equipment is also available.

Results are positive because they are conducted on a pilot plant scale.

Write for particulars.



BUFLOVAK-DOPP Processing Kettles are used for thorough mixing of a wide range of chemical and food products.

Performance records show considerable savings in steam, power and operating time.

Exclusive features in design and construction assure uniform mixing, heating and cooling. The result is a better, more uniform product, produced at lower cost!

Complete details upon request.

**BUFLOVAK EQUIPMENT DIVISION
of BLAW-KNOX COMPANY**
1645 Fillmore Ave. Buffalo 11, N. Y.

When inquiring check CP 1620 on handy form, pgs. 2-3

IDEAS

**Develops safety appliances
in new lab . . .**

scope of research extends to all industries through nearly every branch of science and engineering

World's largest research laboratory devoted to developing safety equipment for all industries has recently been completed by the Mine Safety Appliances Company of Pittsburgh, Pa. Facilities of this lab will be used in developing equipment and devices to combat hazards of all types.

Constantly changing industrial processes obviously bring new hazards that must be overcome by new safety equipment; therefore, apparatus for use in such relatively new fields as air pollution and atomic energy are among the



This dust chamber experiment being performed in the new laboratory will aid in developing more effective respirators and filters

projects planned for the lab. There will also be continuing research to improve existing safety devices and rescue apparatus.

Virtually every branch of science and engineering is utilized for developing protective equipment and instruments. The lab is staffed by chemists, physicists, electrical engineers, and other scientists.

The 4-story building contains many types of research apparatus, including high altitude chambers; dust, fume, and gas chambers; a wind tunnel; and an electron microscope that permits magnifications to 100,000. Library contains a comprehensive collection of literature covering the fields of safety, industrial health, and hygiene. Experimental shop manufactures new models of apparatus developed through research. (Mine Safety Appliances Company, Pittsburgh, Pa.)

**Fiberglass yarn reinforcement
extends conveyor belt life
three or four times . . .**

yarn is especially useful in belts carrying heated materials such as coke, quicklime, or hot sand

Performance data received from 3 companies indicate that conveyor belts reinforced with Fiberglass operate several times as long as belts with all-cotton reinforcement.

Specifically, a large Eastern foundry using conveyor belts to carry hot sand reports more than 3200 hours' satisfactory service from Fiberglass-reinforced belts. In contrast, 4 cotton-reinforced belts averaged only 918 hours' service under comparable conditions.

In a major chemical producer's plant, comparison studies were made of belts used for carrying quicklime at about

CHEMICAL PROCESSING

300°F. Fibreglas belts lasted 17 months, 4 days, while 2 conventional belts gave a combined service of only 6 months, 8 days.

A third form, whose belts carry hot coke, reported that Fibreglas belts lasted 4 times as long as conventional belts previously used. Operating costs in all 3 of these installa-



Adding Fibreglas reinforcement to conveyor belts triples their life, cuts costs in half

tions were reduced to about 50% through use of Fibreglas belts.

Use of Fibreglas yarns with other textiles provides effective reinforcement for hot material conveyor belts because Fibreglas combines good rubber adhesion with great strength under heat — 90% of original at 450°F. In addition, glass yarns are dimensionally stable, a factor which reduces rubber fatigue and thus extends belt life. (Owens-Corning Fibreglas Corporation, 16 E. 56th St., New York 22, N. Y.)

Conveyor belt life increased 10-25% when made of "cold rubber" compound . . .

qualities contribute to better performance in certain flat belt services

"Cold rubber" when properly compounded for use in some conveyor belts should add from 10-25% more wear in certain services. Methods have been found to use the good qualities of the improved general-purpose man-made rubber, particularly those of higher resistance to abrasion, in certain flat belt services.

This type of rubber gets its name "cold rubber" because it is made at a temperature of 41°F, while older type general-purpose rubber is produced at a temperature of 122°F. Widest use of "cold rubber" thus far has been in tire construction where it gives increased tread wear. (B. F. Goodrich Co., Akron, Ohio).

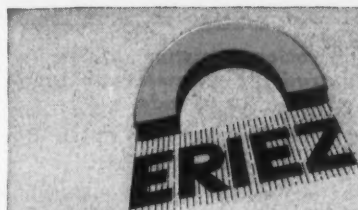


Golden Guarantee

(Continued from page 4)

in the past. Looking ahead, with full faith in the cumulative destiny of man the curiosity seeker, we can say with all confidence that, given a continued friendly climate of freedom and individual initiative, research is a golden guarantee that the best is yet to come.

NOVEMBER, 1950



Issued periodically in Erie, Pennsylvania, by the Eriez Manufacturing Company, Producers of Magnetic Equipment.

MAGNETIC AGE

AUTOMATIC INSPECTOR STOPS HIDDEN METAL



The RCA Electronic Metal Detector, sold nationally and in Canada by the Eriez Manufacturing Company, is shown in a Vicks Chemical Company plant. This automatic inspector warns of the presence of any metal particles in any non-metallic material. It will detect pieces as small as .039" in diameter at conveyor speeds up to 600 fpm.

The material which is to be inspected is conveyed by belt or other means through the inspection aperture of the Detector. Here it is screened by a high frequency electromagnetic field. If metal is present it causes a reaction which is detected and amplified. This triggers a signaling device (bell, lamp), an automatic ejection or marking device, or a combination thereof.

INTERNATIONAL HARVESTER PLANT ENGINEER PRAISES ERIEZ MAGNETIC SEPARATOR

At the Indianapolis Works of the International Harvester Company, an Eriez Permanent Magnetic Pulley is used to separate usable shot from fines in a Pangborn shot blasting machine.

The plant engineer reports excellent results.

The unit is separating minute particles of ferrous from non-ferrous material by the use of strong, specially designed Alnico permanent magnets.

The Eriez pulley is 12" in diameter and is inserted in a 12" belt width line. Magnetized

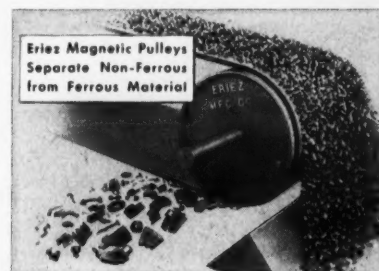
MAGNET CATCHES TRAMP IRON UNDER HIGH HEAT CONDITIONS

An Eriez Plate Magnet installed on a conveyor line at Trico Products, Buffalo, N. Y., is successfully separating tramp iron from scrap zinc despite its exposure to the radiant heat of an adjacent metal-melting furnace.

The fact that the Eriez product utilizes permanent, non-electric Alnico magnets is an important reason for the constant protection afforded Trico under these conditions. No depreciation of magnetism has been observed.

An Eriez Giant magnet is the type used. This is the most powerful model produced commercially. It is used effectively to remove tramp iron and steel from heavy flows of sand, coal, metal, rock products, etc., and for purifying liquids or slurries passing over the separator.

More information about Eriez plate magnets for industry can be obtained by circling No. 6 in the coupon and mailing.



Eriez Magnetic Pulleys Separate Non-Ferrous from Ferrous Material

bars run lengthwise of the pulley and create a magnetic field through the belt. The non-magnetic material falls off the belt as it passes the tangent point of the pulley, while the magnetic shot clings to the belt until it is carried out of the magnetic field.

Newly designed 1950 Eriez Magnetic Pulleys are up to 50% stronger. To learn more about these effective separators, circle No. 5 in the coupon and mail to Eriez.

NEW ERIEZ ROTARY MAGNETS SWEEP FLOORS, RETRIEVE PARTS



Eriez Rotary Sweeper Magnet

A low-cost permanent magnetic device for sweeping up or retrieving ferrous material from floors, parking lots, plating tanks, etc., is now being marketed by the Eriez Mfg. Co. These lightweight rotary magnets offer maximum pick-up capacity because the magnetic tube rotates through a full 360° and thereby presents the greatest possible surface area for collection.

Two types are manufactured, floor and tank magnets. The floor magnet has proved invaluable in cleaning up factory floors, driveways, parking lots and other areas. It operates just like a carpet sweeper, with the magnetic tube mounted between Neoprene wheels. Ferrous material literally jumps to the magnet and spreads itself over the entire circumference to a thickness of about 3/4". Unloading is accomplished at either end by simply pushing the wiper ring from one end of the tube to the other, where a non-magnetic section causes the load to be released. Several sizes are available.

The tank magnet is extremely useful in removing metal parts or contamination from alkali baths, plating tanks, etc. Design is similar to that of the floor magnet except stainless steel is used in its fabrication to make it acid-proof and alkali-proof. Two different sizes are manufactured.

Prices on the Eriez Rotary Magnets range from \$26.50 to \$53.50 depending upon model and size. For more information circle No. 3 in coupon and mail to Eriez.



Rotary Tank Magnet

ERIEZ MANUFACTURING COMPANY
201 State Street, Erie, Pa.

RETURN THIS COUPON

Name

Title

Company Name

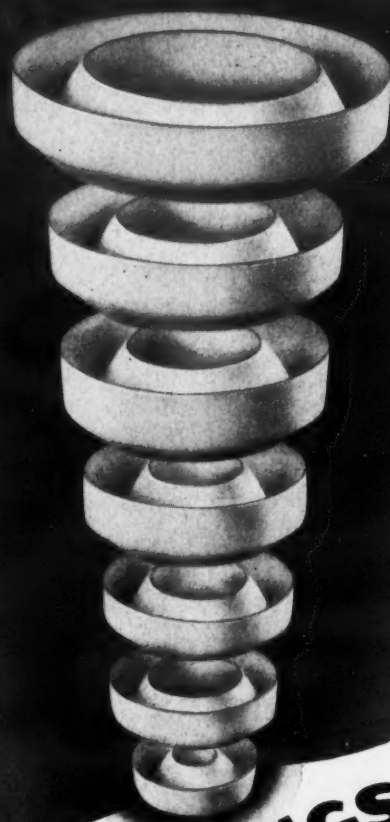
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Get Eriez 8-Page Quarterly House Organ • Technical, Human Interest, Installation Stories • Request On Business Letterhead

When inquiring check CP 1621 on handy form, pgs. 2-3



"V" RINGS
these
seal ALL CHEMICAL
and HYDRAULIC SERVICES

*PAT. PENDING

THE NEWEST
"JOHN CRANE" CHEMLON
PACKING made from TEFLON

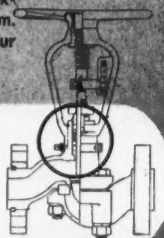
Here, for the first time, are low-friction, completely chemical-resistant "V" Rings. They enable the chemical industry to take advantage of the newest hydraulic developments because they mean that equipment designing is no longer limited to synthetic rubber "O" and "V" Rings.

CHEMLON "V" Rings are perfectly molded; have extremely low friction and will resist any corrosive chemical. Their special cross-section design insures permanent sealing even under varying pressures, at temperatures up to 450° F.

As pioneers in the development of Teflon packings, Crane Packing Company can handle your toughest chemical sealing problem. We mold, braid and machine Teflon products. Whatever your need—come to "John Crane".

Be sure to send for our Teflon and Chemical packing catalog.

This Chemlon-packed "Domotor" Valve made by the Annin Co. of Los Angeles is one of its line of steam and oil control valves...all with Chemlon "V" Rings as standard equipment. These rings stand up three times longer than those used before, and form a perfect seal by finger-tight gland pressure.



JOHN CRANE

CRANE PACKING COMPANY
1821 CUYLER AVENUE • CHICAGO 13, ILLINOIS
Offices in all Principal Cities in United States and Canada

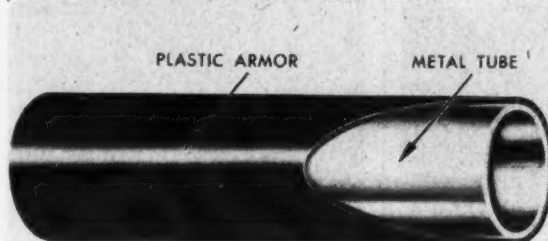


IDEAS

**Corrosion resistant plastic
extruded over metal tubing;
color serves as code . . .**

used in chemical and salt plant; suitability for oil, gas pipelines indicated

A new plastic armored metal tubing having high corrosion resistant properties offers advantages in such applications as conduit in chemical, salt and similar plants. It is impervious to acids, alkalis and other corrosives. Used in transmission of water, air or gas. Tubing consists of almost any thermoplastic, such as polyethylene, or cellulose acetate butyrate, extruded



Plastic armored tubing comes in diameters to 3"

over metal tubing of ferrous or non-ferrous analysis. Virtually any color of plastic can be used for purposes of color coding.

Tubing is being made in diameters up to and including 3" in any desired length. Range of plastic thickness is .010" to .062". Larger diameters will also probably be extruded. A method of joining lengths of the tubing has been developed. Ordinary conduit benders are adequate for shaping the tubing after the plastic armor has been applied.

Dekoron tubing is a development of Samuel Moore & Co., Dekoron Tubing Div., Dept. CP, Mantua, Ohio . . . or for more information check CP 1623 on handy form, pages 2 and 3.

**Compressed gas cylinder
outlet, inlet connection
standard is ready . . .**

consensus of all groups — makers users and general interests has been reached

The first published edition of the American Standard Compressed Gas Cylinder Outlet and Inlet Connections, B57.1-1950, is now available. The standard was developed by the Valve Thread Standards Committee of the Compressed Gas Association and recommends detailed dimensions for all elements of valve outlets of compressed gas cylinders and their connections.

These dimensions are chosen in such a way as to prevent unintentional or dangerous cross connections between gas cylinders and outlets for different gases. To this purpose the threads on the outlets are separated into four basic divisions, internal and external, as well as right-hand and left-hand.

Within each of these four divisions, further separation is made by varying the pitch and diameter of the threads. The diameters within each division are so spaced that adjoining sizes will not enter or will not engage.

Some of the threads are pipe threads, others are screw

Automatic
"STRAIGHT-LINE"
TEMPERATURE CONTROL

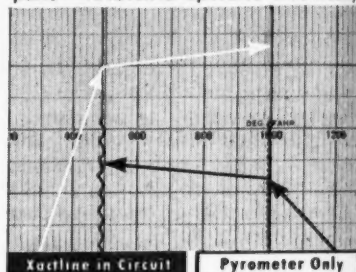


with
XACTLINE

**ELIMINATE
Overshooting
Undershooting**

Are you going to continue to put up with that troublesome overshooting and undershooting inherent in your conventional pyrometer control—especially when it is so easy to eliminate that saw-tooth effect?

Put XACTLINE in the control circuit. XACTLINE anticipates the temperature changes—before they occur. And too, it nullifies the varying amounts of thermal lag, residual heat, and mechanical lag—producing a short on-off cycle resulting in "Straight-Line" temperature control. This performance is possible because there is no dependence upon mechanical parts—XACTLINE operates electrically.



Exact reproduction of temperature chart for a heating process showing the comparison of the "Straight-Line" temperature control produced by XACTLINE and the saw-tooth curve obtained with only conventional control.

XACTLINE is applicable to any indicating or recording pyrometer control of the millivoltmeter or potentiometer type. It should be used wherever close temperature control is required—any type of electrically heated oven, furnace, kiln, injection molding machine, and fuel-fired furnaces equipped with motor-operated or solenoid valves.

XACTLINE is a complete unit. No adjustment or coordination with the control instrument is required regardless of the size of the furnace, length of the heating cycle, or size of the load. Installation is very simple—can be either flush or surface mounted.

PRICE \$89.50 F.O.B. CHICAGO
Nothing Else to Buy

**GORDON
SERVICE**

CLAUD S. GORDON CO.

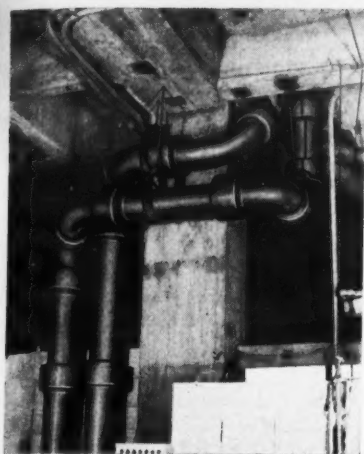
Specialists for 36 Years in the Heat Treating and Temperature Control Field
Dept. 19 • 3000 South Wallace St., Chicago 16, Ill.
Dept. 19 • 2035 Hamilton Ave., Cleveland 14, Ohio

When inquiring check CP 1624 on handy form, pgs. 2-3

CHEMICAL PROCESSING

When inquiring check CP 1622 on handy form, pgs. 2-3

KNIGHT-WARE



The Pipe You Need for Corrosive Service

Knight-Ware acid proof pipe and fittings may be used wherever corrosive liquids and gases must be handled. This quality chemical stoneware is not just surface resistant but is physically tough and corrosion proof throughout its entire body. It is resistant to all acids and alkalis, hot or cold, in any concentration.*

In difficult installations special pieces may be required. These can be made of Knight-Ware at relatively low cost because no expensive molds are required in their manufacture. Knight-Ware is available in a variety of standard fittings and can be installed by any competent plumber.

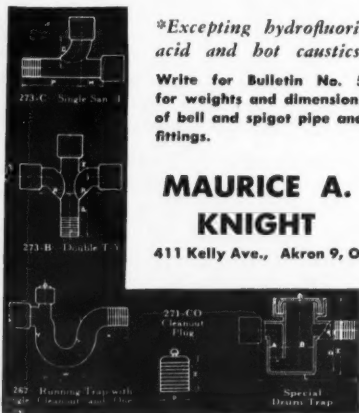
Knight-Ware has found wide application for more than 40 years in the chemical processing industries, industrial laboratories, pharmaceutical plants and colleges and universities.

*Excepting hydrofluoric acid and hot caustics.

Write for Bulletin No. 5 for weights and dimensions of bell and spigot pipe and fittings.

MAURICE A. KNIGHT

411 Kelly Ave., Akron 9, O.



When inquiring check CP 1625 on handy form, pgs. 2-3

IDEAS

threads having the American National Form. They are designated by the Symbol NGO (National Gas Outlet). Gauges for NGO threads are made in accordance with Handbook H28, Screw-Thread Standards for Federal Services.

If and when the Unified Screw Threads as given in the American Standard B1.1-1949, Unified and American Screw Threads, are incorporated in Handbook H28, the basic data for NGO threads will be changed to conform. This change will not affect their interchangeability with the threads as now specified.

A numbering system for the valve outlet connections is given along with 68 applications of these connections for various gases. Through the procedures of the American Standards Association, approval as American Standard has certified that a consensus of all national groups representing makers, users and general interests has been reached on the provisions of the standard. (Copies of this edition B57.1-1950 are available from American Standards Association, 70 East 45th St., New York 17, N. Y., or from Compressed Gas Association, 11 West 42nd St., New York 18, N. Y., at \$1.50 per copy.)

Helium tracer gas studies under way in W. Va. . .

indicated as a promising tool for oil and gas industries, states Government report

Helium, used as a tracer gas in petroleum reservoir, continues to be a promising tool for the oil and gas industries. When used as a tracer gas, helium is mixed with natural gas being injected into a natural underground reservoir for secondary recovery of oil, recycling, pressure maintenance, or other purposes. This enables operators to trace underground migrations of hydrocarbon fluids. Helium-tracer technique is being studied by the Bureau of Mines. The Bureau is participating in a project at Cabin Creek Field, Boone and Kanawha counties, W. Va., with Pure Oil Co.

Three separate tests were made at the Cabin Creek field. Findings of each are reported separately in Report of Investigations 4715. Copies are available from Bureau of Mines, Publications Distribution Section, 4800 Forbes St., Pittsburgh 13, Pa.

Solutions of formaldehyde in alcohols available . .

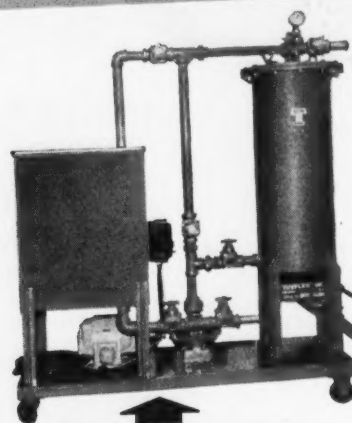
offered in semi-works quantities; convenient for handling by regular methods

Solutions of formaldehyde in various types of alcohols are now being made available to industry on a pilot plant scale. It is currently being sold in semi-works quantities as 55% solutions of formaldehyde in methanol and 40% solutions in butanol, propanol and methanol.

Introduction of these products is a direct result of pioneering work carried on in formaldehyde chemistry. Tests have proved the practicability of handling a relatively water free alcohol solution of formaldehyde at regular temperatures with standard equipment. Cost savings and convenience of handling by regular methods are advantageous where processes are based on a formaldehyde-alcohol end product. (Formcel solutions are a development of Chemical Div., Celanese Corp. of America, 180 Madison Ave., New York 16, N. Y.)

Titeflex

FILLS CHEMICAL PROCESSING REQUIREMENTS
TO A . . .



Titeflex FILTERS

Entire operating cycle—pre-coating, filtering and cleaning—completed merely by turning valves. Saves time, saves labor costs, increases production. Permanent filtering elements eliminate need for bags, pads, sheets, etc. Available in sizes to deliver from 100 to 10,000 g.p.h.

Titeflex ALL-METAL FLEXIBLE TUBING

Because it's all-metal, it has the inherent strength of metal, yet it is completely flexible. Made in brass, bronze, stainless steel, monel and inconel, to solve most problems of corrosion. Types and sizes to withstand pressure to 6800 p.s.i. and temperatures to 1525° F. Braided or unbraid.



Titeflex, Inc.

500 FRELINGHUYSEN AVE.
NEWARK 5, N. J.

Write for fully-illustrated descriptive literature.

EXCLUSIVE MANUFACTURERS OF TITEFLEX
HIGH QUALITY PRODUCTS FOR MORE
THAN 30 YEARS.

When inquiring check CP 1626 on handy form, pgs. 2-3



SEEING IS BELIEVING WITH

Rochester STAINLESS STEEL DIAL THERMOMETERS

Extremely sensitive, accurate and durably made of high quality stainless steel, you can depend upon Rochester Dial Thermometers to indicate temperature changes quickly in all types of service. There is no squinting at hard-to-see mercury columns. Big, bold dials permit you to take readings at a glance. You see quickly . . . and can believe what you see!

The new precision bi-metallic element is extremely sensitive, quickly reflecting temperature changes. It is free from indicator vibration and extremes in temperature do not cause distortion. Rugged construction guarantees long life. All exposed parts are stainless steel.

Rochester Dial Thermometers are available in many types, stem lengths and scale ranges. For specifications and prices on these or any other combinations, mail form.

No. 1725=3" dial Stem lengths 2 1/4", 3 1/2", 6", 9", 12", 15", 18", 24"	No. 1750=2" dial Stem lengths 2 1/4", 3 1/2", 6", 9", 12", 15", 18", 24"	No. 1825=6" dial Stem lengths 2 1/4", 3 1/2", 6", 9", 12", 15", 18", 24"
One piece Sockets—to fit all stem lengths		
TEMPERATURE RANGES		
Fahrenheit	Centigrade	Dual Scale
-50 to 120°F.	50 to 350°F.	-70 to 160°C.
-70 to 150°F.	0 to 500°F.	-10 to 110°C.
0 to 200°F.	150 to 750°F.	0 to 150°C.
0 to 300°F.	*200 to 1000°F.	0 to 300°C.
30 to 240°F.		100 to 400°C.

*Not recommended for continuous operation above 800°F.

Rochester

GUARANTEED ACCURACY

ROCHESTER MANUFACTURING CO., INC.
86 Rockwood St., Rochester 10, N. Y.

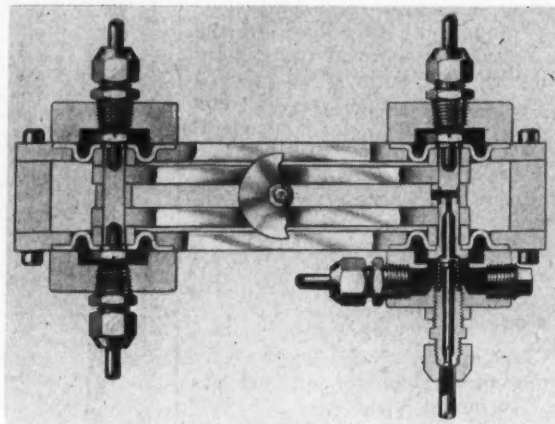
We require..... dial thermometers with temperature range
of to°; " dial; " stem.
Please quote.

Name Title
Company
Address
City State

When inquiring check CP 1627 on handy form, pgs. 2-3

Ratio Totalizer Offered as Pneumatically Operated Control Mechanism

Combines input control pressures and spring forces in any
ratio to produce single output control pressure



Ratio totalizer

USES: Pneumatically operated control mechanism for combining input control pressures and spring forces in any desired ratio to produce a single output control pressure. Device will add, subtract, multiply, or divide control signals in computing circuits; or introduce proportional band action, rate action, or automatic reset—either separately or in any desired combination—in control circuits. Two or more of these devices may be connected pneumatically to secure the combined characteristics of rate action, proportional band, automatic reset, and other requirements of instrumentation.

Features: Frictionless construction assures sustained accuracy and freedom for maintenance.

Description: Standard ratio totalizer consists of 4 pressure chambers arranged in opposing pairs and acting through non-metallic, flexible diaphragms on the two ends of a balance beam. Fulcrum of beam, supported by bearings at each side, is adjustable in position along the beam. It is held by a clamping bolt which gives arm ratios ranging from 1:1 to 16:1. This corresponds to a proportional band of 25% to 400% when used as a regulator.

Any of the 3 input pressure chambers may be replaced by an attachment to load the balance beam for measurement of a mechanical force, such as might be transmitted through the force arm of a dynamometer.

Chambers may also be modified by the use of tension springs or metal bellows on one or more of the loading elements. A spring can be used as a fixed loading for manual set point adjustment, or as a bias in connection with signals requiring range suppression. Maximum spring load is equivalent to 60 psi pressure, which is the maximum allowable pressure in standard pressure chambers.

Totalizer can accommodate as many as 3 input loadings plus 3 spring forces. Bellows elements permit use of the device as an automatic pressure measuring unit for fluid pressures higher than the usual pneumatic loads and up to 600 psi.

Poppet-type pilot valve that regulates output pressure is connected with one of the 4 pressure chambers. One end of the valve stem normally closes the exhaust port by contact with a valve seat on the balance beam. Other end is normally spring-held against the valve seat of the air supply inlet port. Movement of the beam in response to changes of input loading pressures in the other 3 pressure chambers opens one or the other of these ports until a balance of forces is restored.

Single moving part is self-aligned by the valve seats. Valve is a non-bleeding type which takes air only when output loading pressure is increasing. Capacity is 2 cfm at midpoint of operating range, and average air consumption is 0.25 cfm. Output loading pressure may be in the range of 3-15, 0-30, or 0-60 lb.

Accuracy of the ratio totalizer is within 1% of full scale reading. Loading pressure is reproducible upon a change in input loadings of less than 0.1%, when input pressure is at maximum.

Totalizer is 9 1/2" long (overall), and centers of pressure on the balance beam are 6" apart. Maximum adjustment range of the fulcrum is 4-3/8". Unit can be mounted in any position in a space 10 x 8-3/8 x 7 1/2". Two 3/8" mounting studs on 8-7/8" centers are provided.

Source: Product of the Hagan Corporation, Dept. CP, Pittsburgh, Pa. . . or for more information check CP 1628 on handy form, pages 2 and 3.

**Fulfills all requirements for
electrolysis, corrosion, and
cathodic-protection tests . . .**

useful in field work, combination meter takes place of numerous separate meters customarily required

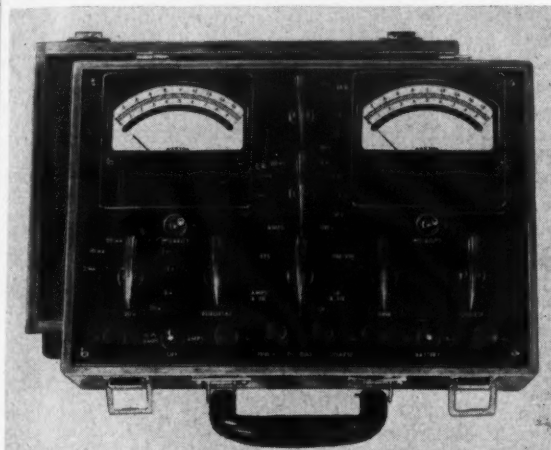
Uses: Suitable for measurement of voltage, current, and resistance in field work. Applicable to electrolysis, corrosion, and cathodic-protection testing.

Features: Designed as a combination meter, it takes the place of the many separate instruments that are customarily required for such testing. Compactness, complete portability, and weight of only 13 pounds are offered by the meter. Accuracy is 1%.

Description: Model B-3 Multi-Combination meter, as it is known, has a low range of 2 millivolts. Mirror scales are 3.9" long. By use of a selector switch, 2 high-sensitivity DC instruments can be connected into a variety of measuring circuits for measurement of potentials, current, resistance, and soil resistivity. In-

ternal batteries with switch and coarse and fine control are used to supply and control current for test purposes. Voltmeters, or voltmeter and ammeter can be used separately or simultaneously. Polarity reversing switches provide for both current and potential measurements.

Circuit is included for measuring resistance of leads,



Combination meter for measuring potentials, currents, and resistances

bonds, shunts, flanges, etc., and for measuring resistivity of soil to any depth by the 4-electrode method.

Source: M. C. Miller, Dept. CP, 1142 Emerson Ave., West Englewood, N. J., is the maker. . . or for more information check CP 1629 on handy form, pages 2 & 3.

Shuts-down air conditioners if smoke is detected in duct systems . . .

photoelectric control guards duct systems from spreading smoke, fire throughout buildings

Uses: Control detects smoke in the ducts of air conditioning systems, and when used with suitable auxiliary relays will automatically turn off blowers, close automatic shutters, and sound alarms.

Features: Guards duct systems from spreading smoke and fire throughout a building. In some actual instances, this control would have prevented drawing smoke and fires from outside buildings through air intake systems.

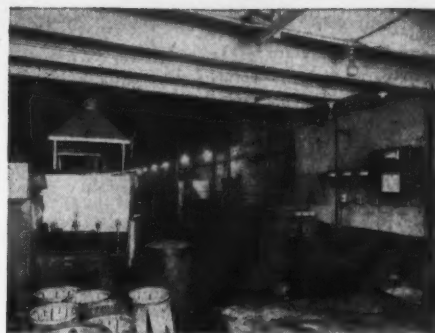
Description: Type A28E photoelectric smoke detector is supplied with a

light source. Detector and light source are mounted on opposite sides of duct. Photoelectric circuit is sensitive and tamper-proof. Specifications: operating range, 5-30'; supply voltage, 115 v, 60 c AC; relay contacts, SPDT; and contact rating, 3 amp at 115 v — 1.5 amp at 230 v (non-inductive).

Additional information is included in maker's Bulletin PE 505.

Source: Product of Photoswitch Incorporated, Dept. CP, 77 Broadway, Cambridge 42, Mass. . . or for more information check CP 1630 on handy form, pages 2 & 3.

NOVEMBER, 1950

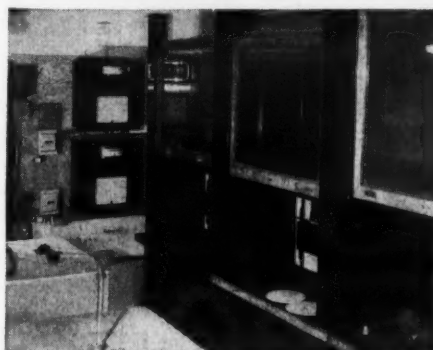


AT DONOVAN COMPANY — Heat Treating —
In this completely Wheelco equipped shop the CAPACILOG is used on a gas-fired 48" hardening furnace. It operates with a solenoid valve.

AT METLOX MFG. CO. — Pottery —
To keep a complete permanent record of the critical temperatures needed for firing fine figurines and dinnerware, a CAPACILOG is mounted on the tunnel kilns of this quality goods manufacturer.

Instrumentality in action...for economy

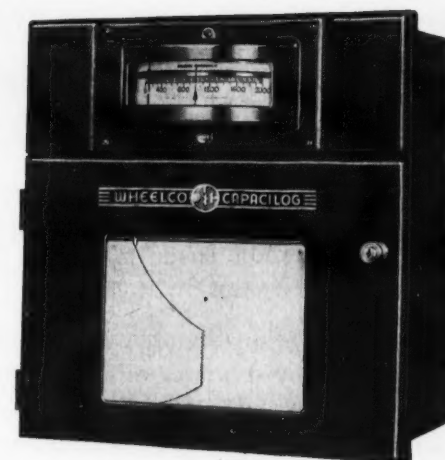
Leading manufacturers in the various process industries use the WHEELCO CAPACILOG to assure more profitable use of process equipment. From original cost through more efficient production, the CAPACILOG gives more economical permanently recorded control of electrically measurable variables.



AT U.S. DEPT. OF AGRICULTURE — Laboratory —
In the Grain Branch, Department of Production and Marketing, where grain samples are tested, the CAPACILOG is used to control and record the temperatures of muffle furnaces.

...wheelco capacilog

A direct reading, deflection type, strip chart recorder which gives you continuous, fast, simple and accurate reproduction of industrial processes. You get measurement, indication and control with a permanent record of temperature, speed, static strain loads, AC-DC voltage, amperage and other electrically measurable factors with the Wheelco Capacilog.



specify Wheelco for the economy of instrumentality

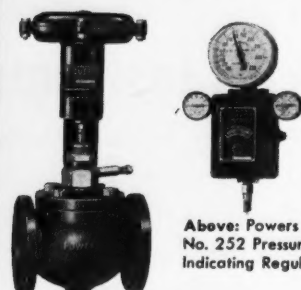
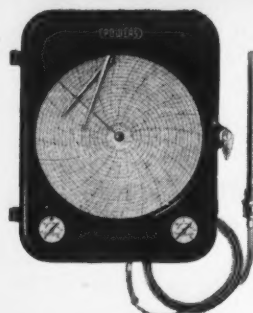
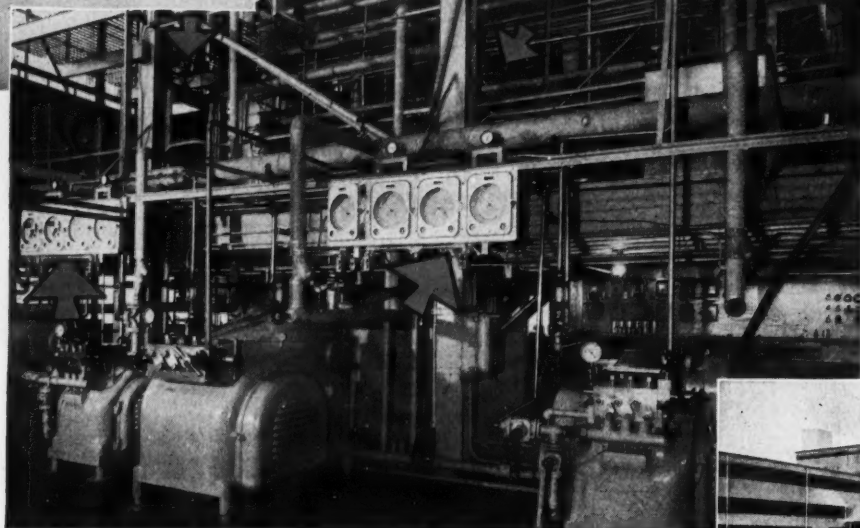
Write for Bulletin C2 • WHEELCO INSTRUMENTS COMPANY • 841 W. Harrison Street, Chicago 7, Illinois

wheelco electronic controls

When inquiring check CP 1631 on handy form, pgs. 2-3



Illustration below shows 8 of the Powers Recording Regulators controlling eight diaphragm valves regulating temperature of orange juice concentrate being processed by SKINNER Mallorizer. At right: Powers Series 100 Recording Regulator.



Powers Flowrite Control Valve



Quality control

in JUICE INDUSTRIES (Div. of Clinton Foods, Inc.)

Increases soaring demand for their products



Recording
TEMPERATURE REGULATORS

... controlling the SKINNER Mallorizer (above) and De-Oiler (at right) play their part in helping to maintain the uniformly fine flavor for which JUICE INDUSTRIES products are famous.

Whenever the quality of your products and your profits are affected by accurate, uniform temperature regulation... consider POWERS. With almost 60 years experience and a wide variety of pneumatic and self-operated controls we may be able to help you select the best equipment for your requirements. If you have a problem of temperature or humidity control contact your nearest POWERS office or write—

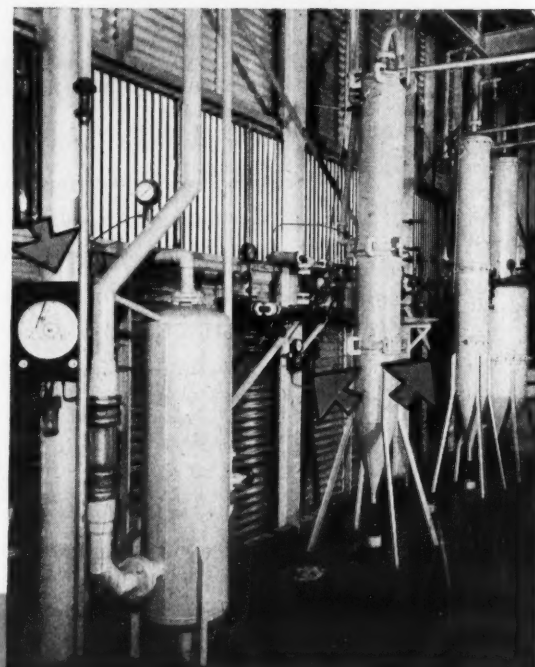
(No. 5C)

THE
POWERS REGULATOR CO.

Over 55 Years of Pneumatic Temperature Control • Offices in Over 50 Cities • See Your Phone Book

CHICAGO 14, ILL., 2756 Greenview Ave. • NEW YORK 17, N. Y., 231 E. 46th St. • LOS ANGELES 5, CALIF., 1805 W. 8th St. • TORONTO, ONT., 195 Spadina Ave.

MEXICO, D. F., Edificio "La Nacional" 601



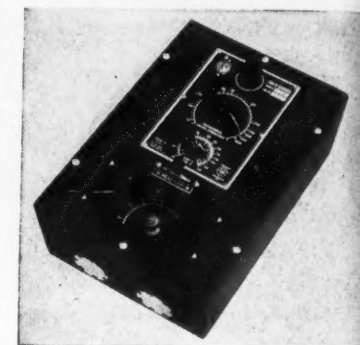
PROCESS INSTRUMENTATION

Announces improvements in solution conductivity controller . . .

readings made without disturbing setting of control point

Uses: For control of solution conductivity.

Features: Modification of standard "Solu-Bridge" controller — af



Solution conductivity controller

fording readings without disturbing setting of the control point.

Description: Model REI solution conductivity controller features two identical knobs and calibrated scales — one for occasional manual setting, the other for control.

Control knob is in a transparent plastic covered recess, and manual reading knob is panel-mounted for easy access. Setting of the manual reading knob does not affect the control action of the instrument.

Source: Product of Industrial Instruments, Inc., Dept. CP, 17 Pollock Ave., Jersey City 5, N. Y. . . . or for more information check CP 1632 on handy form, pages 2 and 3.

Electrodes sense pH in lab or plant

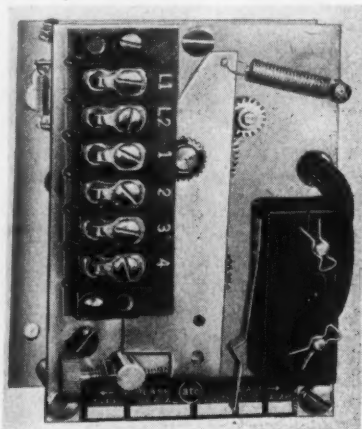
Line of pH electrodes and assemblies for industrial and laboratory applications is presented in 28-page catalog. Each assembly and its components is shown in tabular form. Specific uses and advantages are given.

Such accessories and supplies as buffer solutions, chemicals, holders, and mountings are also listed. Catalog EN-S5 is issued by Leeds & Northrup Company, Dept. CP, 4934 Stenton Ave., Philadelphia 44, Pa. When inquiring specify CP 1633 on handy form, pages 2 and 3.

For more information on product at left, specify CP 1634 . . . see information request blank between pages 2-3.

Resetting of delay timer is instantaneous . . .

ranges of motor-driven unit are from 0.75 sec to 30 min; operates from 115 or 230 VAC



Time delay for electronic and electrical applications

Uses: Provides time delay in electrical and electronic apparatus such as elevator control, machine tools and signal systems. Ranges are from 0.75 sec to 30 min.

Features: Resetting is instantaneous.

Description: Timer is powered by a Telechron motor. Tripping arm is driven through a train of machine-cut spur

gears. Snap-action SPDT precision switch either opens or closes auxiliary circuit. Resetting is accomplished by means of an electro-magnetic coil that positively clutches and de-clutches a trip locking gear as required.

Contact assembly, un-enclosed barrier type terminal block and screw adjustment of time period are standard. Rated for operation from 115 or 230V, 25, 50 or 60 cycles, and to carry 10 amp at 115V and 5 amp at 230V, AC non-inductive load.

Source: Manufacturer of the Type 5600 delay timer is Automatic Temperature Control Company, Inc., Dept. CP, 5212 Pulaski Ave., Philadelphia 44, Pa. . . or for more information check CP 1635 on handy form, pages 2 and 3.

Lever permits cleaning restriction while air operated controller is in use . . .

controller used in conjunction with flow, temperature, pressure and level recorders

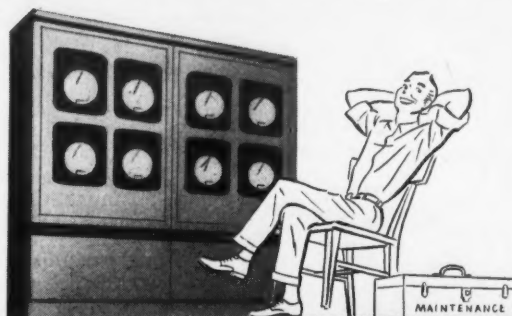
Uses: Provides on-off, proportional control, automatic reset or derivative action when used in conjunction with maker's flow meter, temperature, pressure or level recorders.

Features: A restriction cleaning lever, easily accessible from the front, permits cleaning of the restriction while the controller is in service.

Description: Both nozzle and restriction in controller have sapphire jewels to prevent wear due to dirt, water or oil in the air. Nozzle is non-adjustable. Relay can be removed separately or with the entire control mechanism by breaking only one tube connection and removing 4 screws. Tubing connections have been greatly reduced in number from conventional units through the use of channeled passages in the relay housing. Same relay is used for all types of controllers so that control action can be changed in the field.

Source: Penn Industrial Instrument Corporation, Dept. CP, 3116 North 17th St., Philadelphia 32, Pa. . . or for more information check CP 1636 on handy form, pages 2 and 3.

WHY maintenance men breathe easier . . .



DYNALOGS* have
No slidewire • No Balancing Motor • No Batteries to standardize
PRACTICALLY NO MAINTENANCE

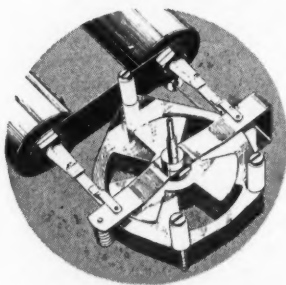
With Dynalog Recorders and Controllers, maintenance men are freed from hazards of sticking electrical contacts and worn slidewires . . . freed from routine lubrication and cleaning of balancing motors, periodic standardizing and replacement of batteries. No wonder maintenance men breathe easier!

The simplicity of Dynalog design is one reason for its unequalled freedom from maintenance. In the entire balancing mechanism there are only four moving parts (none moving faster than the pen). It's free from the gears, cables, etc. used in conventional

bridge-type instruments . . . the result of advanced engineering from concept to construction.

Freedom from maintenance is only one of many important advantages of Dynalog Instruments. They offer . . . speed that's full scale to new balance in as little as one second . . . sensitivity, one ten-thousandth of scale . . . accuracy, 1/4 of 1% of scale. Available for measurement and control of temperature (with resistance bulbs or thermocouples), humidity, pressure, flow, force, pH, conductivity, etc. Get the complete story in Bulletin 427-1. Write The Foxboro Company, 190 Neponset Ave., Foxboro, Mass., U.S.A.

*Reg. U. S. Pat. Off.



The heart of Dynalog superiority

It's a simple variable capacitor! Taking the place of the conventional slidewire, this important component gives Dynalog Instruments absolutely **STEPLESS** continuous balancing. It gives you an instrument of extreme accuracy and stability, with a sturdiness that withstands the most severe industrial conditions.

FOXBORO DYNALOG*

Reg. U. S. Pat. Off.

The electronic potentiometer that has NO SLIDEWIRE

When inquiring check CP 1637 on handy form, pgs. 2-3



P.A.T. '50 is pyrometric control for increasing industrial production

With production demands reaching all time high, new P.A.T. '50 Control comes at the ideal time to help increase process output. Here's why:

New P.A.T. '50 Control acts on the speed of temperature swings as well as their size and permanence. The faster the swings, the further P.A.T. '50 moves the fuel valve. When this movement, called "Rate Action," begins to head off changes, the control backs away and rapidly brings temperature in line.

Only electric positioning control with rate action, P.A.T. '50 can be added to earlier P.A.T. controls by changing control units (center picture) and making slight changes in the controller.

For details, write us at 4995 Stenton Ave., Phila. 44, Penna.



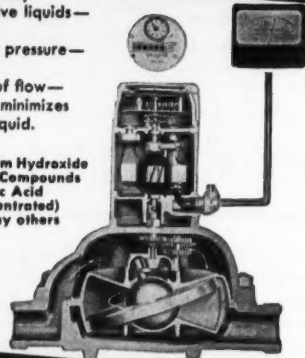
When inquiring check CP 1638 on handy form, pgs. 2-3

CORRECT for CORROSIVES* HAYS VERIFLOW METERS AND VERITROL

Hays Veriflow Meter accurately measures the flow of corrosive liquids—registers total gallonage—indicates rate of flow under pressure—reveals losses instantly. Hays Veritrol controls rate of flow—reduces losses from waste—minimizes spoilage—saves time and liquid.

* Acetic Acid
Calcium Compounds
Carbolic Acid
Fruit and Vegetable Juices
Potassium Hydroxide
Sodium Compounds
Sulphuric Acid (Concentrated)
and many others

Complete description of the Hays Veriflow Meter and Veritrol is contained in Bulletin 48-766. Send for your copy, today.



THE HAYS CORPORATION

MICHIGAN CITY 12, IND., U.S.A.

THE HAYS CORPORATION
Michigan City 12, Indiana
Please send me Bulletin 48-766 on the Hays Veriflow Meter and Hays Veritrol

Name _____
Company _____
Address _____
City _____ Zone _____ State _____

When inquiring check CP 1639 on handy form, pgs. 2-3

PROCESS INSTRUMENTATION

Relays are often unnecessary with clutch-solenoid process timer . . .

auxiliary contacts and those operated after time delay provide four different load circuit combinations

Uses: Process timing. Time scales from 0-30 sec to 0-10 hr are available.

Features: Timer has auxiliary contacts operated by clutch-solenoid. These contacts, together with those operated after the time delay, provide four different load circuit combinations, eliminating relays in many applications.



Timer for flush panel mounting completely enclosed in 3" diam molded housing. Dial and pointers are sealed. Toothed clutch is operated by clapper type solenoid.

Rated 10 amp, 110 volts. Available for 60, 50 and 25 cycle frequencies, 110, and 200 volts.

Source: Eagle Signal Corporation, Dept. CP, Moline, Ill. . . . or for more information check CP 1640 on handy form, pages 2 and 3.

Seals bare wire thermocouples in vessels that are under pressure, vacuum . . .

gland assembly requires only sliding insulators in place, adding talc, and tightening cap

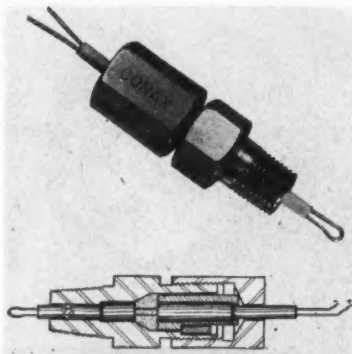
Uses: For sealing bare wire thermocouples in closed vessels that are under either positive or negative pressures.

Gland may be used for temperatures from minus 100 to plus 1600°F, and pressures up to 4000 psi. Models are available for standard 20-gauge wires, 14-gauge wires, and for use with terminal block or conduit.

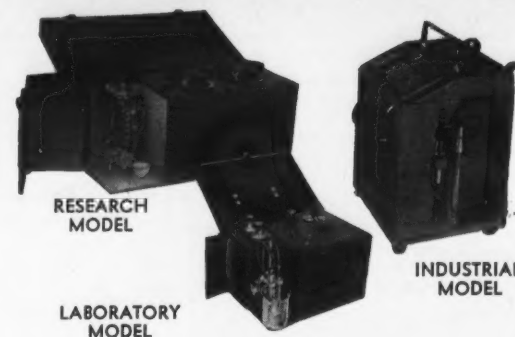
Features: Assembly operation requires only sliding insulators in place, adding talc, and tightening cap.

Description: Sealing the wires by compressing dry powdered talc between two ceramic insulators provides an electric insulation which is virtually unaffected by either temperature or chemical reaction.

Body and caps of the thermocouple gland are fabricated from 304 stainless steel. Gland follower and key—



Bare wire thermocouple gland



RESEARCH MODEL

LABORATORY MODEL

INDUSTRIAL MODEL

Cambridge pH Meters

The three portable models illustrated above incorporate new and important advantages. A.C. line operation eliminates battery nuisance. Laboratory and Research models use electron-ray tube for precise null-point indication. Industrial model is direct-reading, continuous-indicating; ruggedly built for plant use.

Accuracy: Research .02 pH, Laboratory .05 pH, Industrial .10 pH. Cambridge pH equipment also includes single- and multi-point indicators and recorders. Send for Bulletin 910-M.

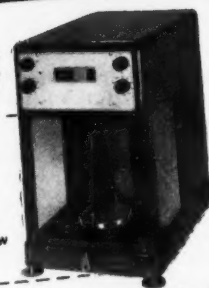
CAMBRIDGE INSTRUMENT COMPANY, INC.
3706 GRAND CENTRAL TERMINAL, NEW YORK 17, N. Y.
Pioneer Manufacturers of PRECISION INSTRUMENTS

When inquiring check CP 1641 on handy form, pgs. 2-3

FISHER Gramatic BALANCE

A NEW, DIRECT-READING ANALYTICAL INSTRUMENT

- Fast weighing (20 seconds)
- No weights to handle
- Beam under constant load
- One-scale reading
- Constant sensitivity
- Completely automatic below 100 milligrams



... weighs in one-third the time required by the usual balance.

Turn control knobs to select built-in weights. Corresponding figures appear on the direct reading scale.

Weights under 100 milligrams are indicated automatically.

The Gram-atic Balance weighs samples up to 200 grams.

For 115 and 230 volt 50-60 cycle A.C. \$895 each

Weight is read directly on indicator.

Headquarters for Laboratory Supplies
FISHER SCIENTIFIC CO. **EIMER AND AMEND**
200 Rivington St., Pittsburgh 19, Pa.
2100 Locust St., St. Louis 13, Mo.
1000 Broadway, New York 18, N.Y.
1000 Broadway, New York 18, N.Y.

When inquiring check CP 1642 on handy form, pgs. 2-3

CHEMICAL PROCESSING

PROCESS INSTRUMENTATION

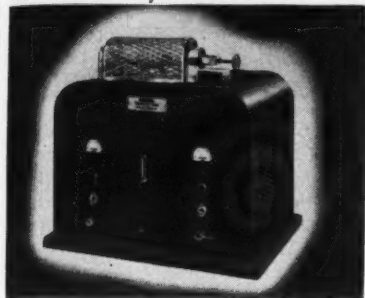
which do not come in contact with gases, vapors, or liquids—are of tool steel.

Source: Product of the Conax Sales Company, Inc., Dept. CP, Kenmore 17, N. Y. . . or for more information check CP 1643 on handy form, pages 2 and 3.

Induction heating employed to rapidly determine carbon content . . .

analyzer requires only two or three minutes for cycle including both combustion and flushing

Uses: Analyzer for detection and analysis of carbon by combustion.



Carbon content analyzer

Features: Complete operation takes only 2 or 3 minutes, including both combustion and flushing.

Description: Sample is placed in boat, inserted in instrument, and consumed by induction heating.

Coarse, fine, or pin samples can be used. Power is drawn from 115 or 230 volt, 60 cycle, single phase line.

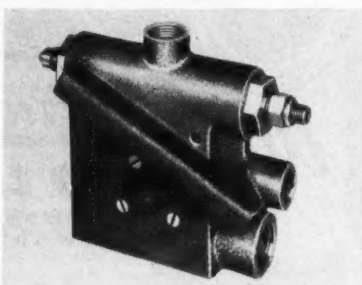
Source: Combustron is product of the Burrell Corporation, Dept. CP, 1942 Fifth Ave., Pittsburgh, Pa. . . or for more information check CP 1644 on handy form, pages 2 and 3.

Hydraulic pressure differential of 12 to 18% cuts electric circuit in or out . . .

cartridge type switch unaffected by temperatures of -65 to 160°F, extreme pressure surges

Uses: Controlling electric circuits by means of hydraulic-pressure actuation.

Features: Operates with as little as 12 to 18% pressure differential. Able to withstand temperature differential ranging from -65 to 160°F without



Small hydraulic pressure electric switch

loss of accuracy or other desirable operating characteristics. Reported to be unaffected by extreme pressure surges, temporary or sustained.

Description: Cartridge type switch is ready to operate immediately as soon as pump is started; it requires no pressure build-up. Small, lightweight and silent, the switch is quickly adjusted without breaking the line. Available with preset switch limitations if desired.

Source: Hydraulic pressure electric switch is a development of Hydraulics Division, Pantex Manufacturing Corporation, Dept. CP, Box 660, Pawtucket, R. I. . . or for more information check CP 1645 on handy form, pages 2 and 3.

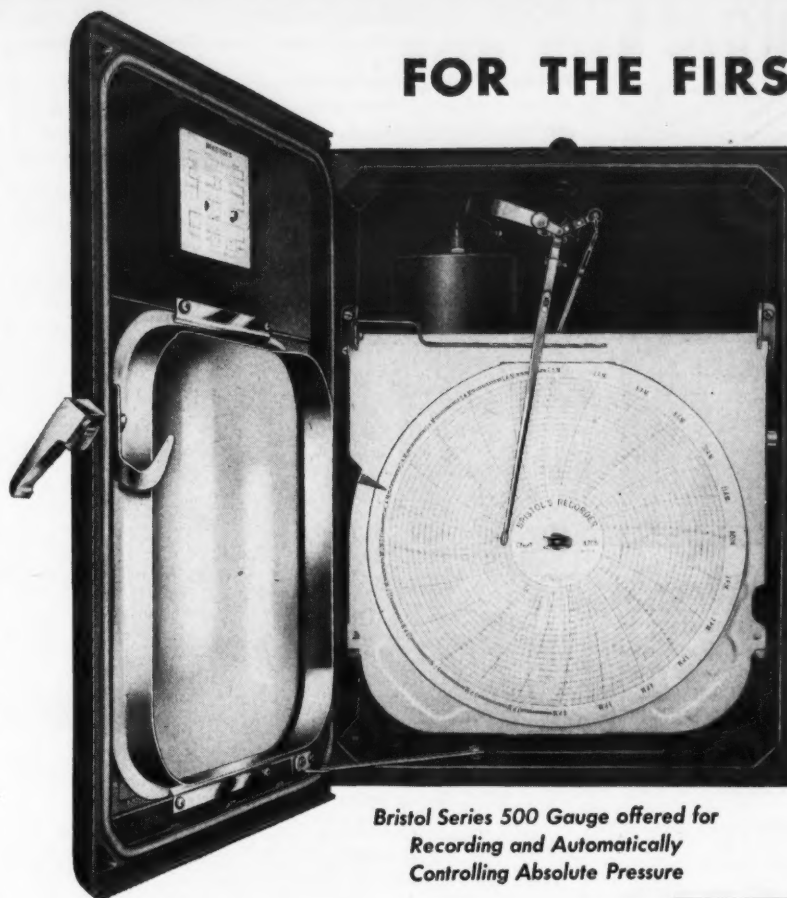
FOR THE FIRST TIME

Accurate Mechanical Recording and Controlling of Absolute Pressure

IN RANGES AS LOW AS 0 TO 6 MM!

Again, Bristol scores a first!

Our new Low-Range Absolute Pressure Recording Gauge gives a direct reading of pressure above zero absolute, inherently corrected for barometric variations, with far greater accuracy than ever before possible—measuring ranges as low as 0 to 6 mm mercury absolute.

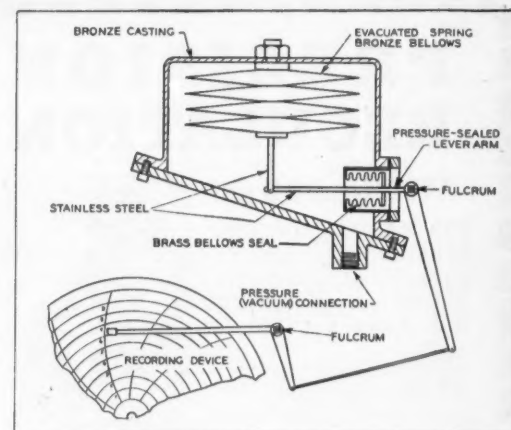


Bristol Series 500 Gauge offered for Recording and Automatically Controlling Absolute Pressure

SINGLE BELLOWS—NO COMPENSATION NEEDED

Instead of *two* pressure elements—one for measured pressure, one to compensate for barometric pressure—Bristol uses a single calibrated bellows element, evacuated to practically a perfect vacuum, enclosed in a cast bronze pressure-tight housing. The bellows motion is transmitted outside the housing through an entirely new device—a pressure-sealed lever arm that is frictionless, entirely free from lost motion and turning moments due to changes in differential pressure across it.

Thus—with one measuring element, Bristol's Absolute Pressure Gauge operates in ranges hitherto considered impractical with metallic elements.



WHAT'S YOUR APPLICATION?

This entirely new, highly-accurate, direct-reading mechanical pressure instrument gives valuable information for controlling pressure wherever the operation of equipment depends upon a high and constant vacuum.

Bristol Low-Range Absolute Pressure Gauge is offered for recording, pneumatic or electric controlling, and pneumatic or electric remote transmission. For Bulletin G620, write THE BRISTOL COMPANY, 141 Bristol Road, Waterbury 91, Conn. (The Bristol Co. of Canada, Ltd., Toronto, Ont.; Bristol's Instruments Co., Ltd., Lynch Lane, Weymouth, Dorset, England.)

BRISTOL

Engineers Process Control
for Better Products and Profits



**AUTOMATIC CONTROLLING, RECORDING
AND TELEMETERING INSTRUMENTS**

When inquiring check CP 1646 on handy form, pgs. 2-3

GOOD WORK HORSE FOR SALE

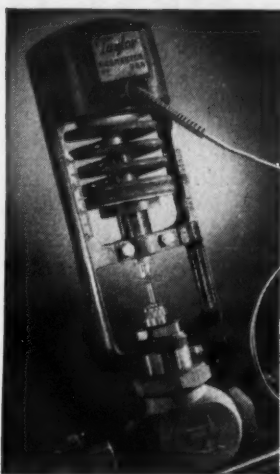
YES, this "horse" works 24 hours a day, never gets sick, and never needs feeding. It's the rugged, dependable, accurate Taylor Self-Acting Temperature Controller. Simple in operation—and practically no maintenance necessary. No auxiliary air supply required.

Perfect where compressed air or electricity aren't available—on processes involving no extreme load changes. Jobs like; open tanks, peelers, sterilizers, hot water storage tanks, etc.

Double seated valves available up to 2"; single seated composition disc types up to 1". Numerous standard temperature ranges within 10° to 340°F., and semi-standard temperature ranges within 165° and 610°F. The Taylor Self-Acting Temperature Controller is one more way Taylor can help keep quality up and costs down for you. Ask your Taylor Engineer or write for Catalog 36-R. Taylor Instrument Companies, Rochester, N. Y., and Toronto, Canada. Instruments for indicating, recording and controlling temperature, pressure, humidity, flow and liquid level.

TAYLOR INSTRUMENTS MEAN "ACCURACY FIRST"

When inquiring check CP 1647 on handy form, pgs. 2-3



PRECISION REGULATION

Within .005 psi

FOR MANUAL LOADING SERVICE...for remote positioning...for accurate flow meter calibration, our MODEL H-10 is tops in the field.

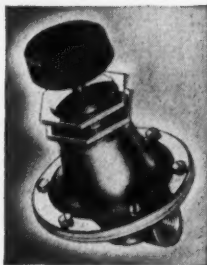
It's built especially for dead end (no flow) service...and guaranteed to be free from "drift" errors. Ranges 0-5; 0-25; 0-50; 0-125 psi for inlet pressures to 150 psi.

If you are looking for a pneumatic regulator that is sensitive to .005 psi (in 0-5 psi range), stable and foolproof, **HERE'S YOUR REGULATOR.**

WRITE TODAY FOR BULLETIN PH-10

CONOFLOW CORPORATION
2100 Arch St., Phila. 3, Pa.

Cono Controls



When inquiring check CP 1648 on handy form, pgs. 2-3

Page 56

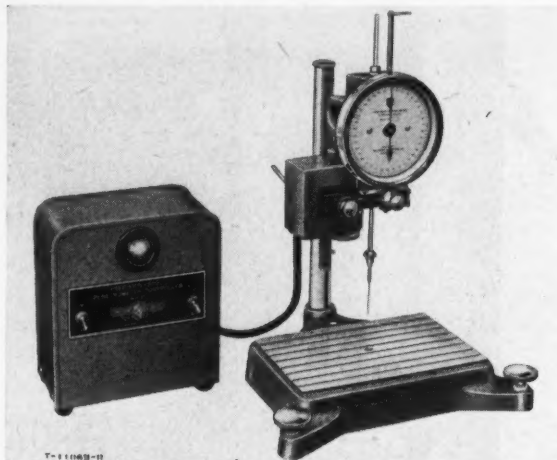
PROCESS INSTRUMENTATION

**Installed on penetrometer,
timer affords accurate
penetration tests...**

flip of switch puts penetrometer through its role

Uses: Timing device for penetrometers—complying with procedures specified in ASTM Series Nos. D-5, D-217, and others.

Features: Makes penetration measurements more accurate by eliminating human errors. Flick of timer's



Timing device installed on penetrometer

switch sets penetrometer into action, as compared with older method of simultaneously consulting a stop watch and either starting or stopping the penetrometer.

Doesn't interfere with the use of any of the present needles or cones used in test procedures. Now, penetration tests on greases, bituminous materials, petrolatum, etc., are more standardized than ever before, maker reports.

Description: Flicking timer's control switch to "on" position sets penetrometer into action—needle is freed and allowed to penetrate sample for precisely 5 seconds. Needle is then gripped (after 5 sec) and held immovably.

Timing is accomplished by a synchronous motor and cam which actuate a micro switch, in turn energizing a solenoid holding the needle shaft. Solenoid is mounted on penetrometer, and is connected to timer chassis by a heavy cord. Complete installation requires about 30 minutes.

Source: Timer for penetrometers is a product of the Precision Scientific Company, Dept. CP, 3737 W. Cortland, Chicago 47, Ill. . . or for more information check CP 1649 on handy form, pages 2 and 3.

**Adapts viscometer for precise
measurement in range of
0 to 10 centipoises...**

reproducibility within 0.02 centipoises is obtained because of amplifying effect of adapter

Uses: Adapter for Brookfield LV viscometer makes possible precise measurements in ultra-low viscosity ranges of 0 to 10 centipoises.

Features: Reproducibility within 0.02 centipoises is obtainable.

Description: Adapter consists of a cylindrical spindle

ANY WAY YOU LOOK AT IT...

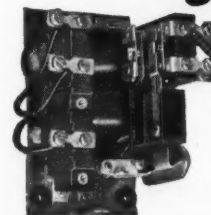


Up in the air, down in a pit, across the shop... you can really read the big, open dial of a Weston Thermometer. And because these rugged, all-metal instruments stand exposure, abuse—you know the temperature you read is right.

Various industrial, *Max-Min, and contact-making types are standard. Consult your Weston representative, or write Weston Electrical Instrument Corporation, 706 Frelinghuysen Avenue, Newark 5, New Jersey... makers of Weston and Tagliabue instruments. *Registered trademark.

WESTON Instruments

When inquiring check CP 1650 on handy form, pgs. 2-3



The original — pioneered by B/W in 1933. No floats! No vacuum tubes! No moving parts in liquid. Literature describes relays and switches, automatic starter and relay combinations, multiple pump controls, special controls and panels and many application diagrams. Controls not affected by pressures, temperatures, acids or caustics. Remote control if desired. Ice free electrodes where necessary.

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B/W CONTROLLER CORPORATION

2204 E. Maple Road, Birmingham, Mich.

FIRST IN THE FLOATLESS CONTROL FIELD

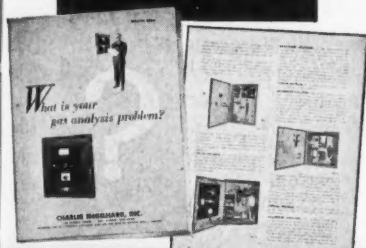
When inquiring check CP 1651 on handy form, pgs. 2-3

CHEMICAL PROCESSING

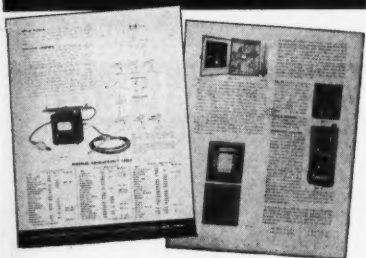
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GAS ANALYSIS?

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YOU WILL FIND a wealth of material on a wide range of gas analysis problems and their solutions in the new Engelhard 8-page illustrated bulletin. It explains how Engelhard equipment provides complete, sensitive, accurate analyses by the proven thermal conductivity method. The bulletin also contains a valuable thermal conductivity table that you will want to keep for handy reference. Write for your free copy today. Ask for Bulletin 800-A.

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Company
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City State X1234

CHARLES ENGELHARD, INC.
850 PASSAIC AVENUE EAST NEWARK, N. J.

When inquiring check CP 1652
on handy form, pages 2-3

PROCESS INSTRUMENTATION

mounted symmetrically within a concentric tube. When attached to viscometer, it gives full scale ($13\frac{1}{2}$ " deflections representing 10 centipoises at 60 rpm, 20 at 30 rpm, 50 at 12 rpm, and 100 centipoises at 6 rpm.

Special pivot housing on adapter permits use of viscometer guard legs and also furnishes an accurate, concentric mount for the adapter. Installation must be made at the factory, but after initial fitting, adapter can be removed at any time and viscometer used in usual manner.

Immersible parts are 18-8 stainless steel. Two tubes are provided with the adapter; one with lower end closed for testing small samples, and one with open lower end for measuring viscosity in vats, tanks or other containers.

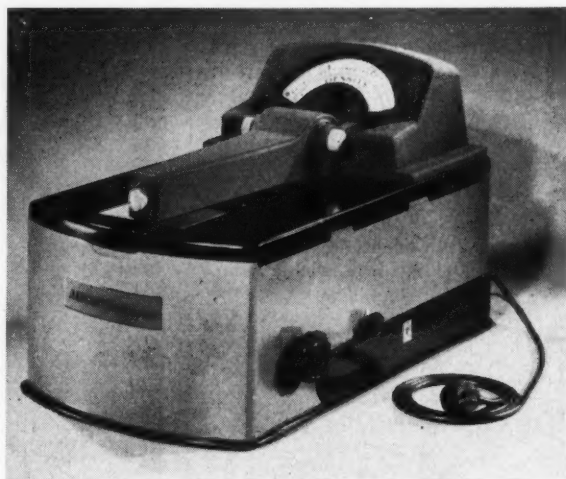
Source: Brookfield Engineering Laboratories, Inc., Dept. CP, Stoughton, Mass. . . or for more information check CP 1653 on handy form, pages 2 and 3.

Color densitometer has numerous applications . . .

unit is an ultra-sensitive precision photometer. Uses: For measurement of color densities in narrow spectral ranges, as well as visual densities over wide range. With accessory equipment, reflection densities of opaque samples and transmission densities of liquids can be measured.

Features: An ultra-sensitive precision photometer, maker reports.

Description: Specialized applications are enumerated



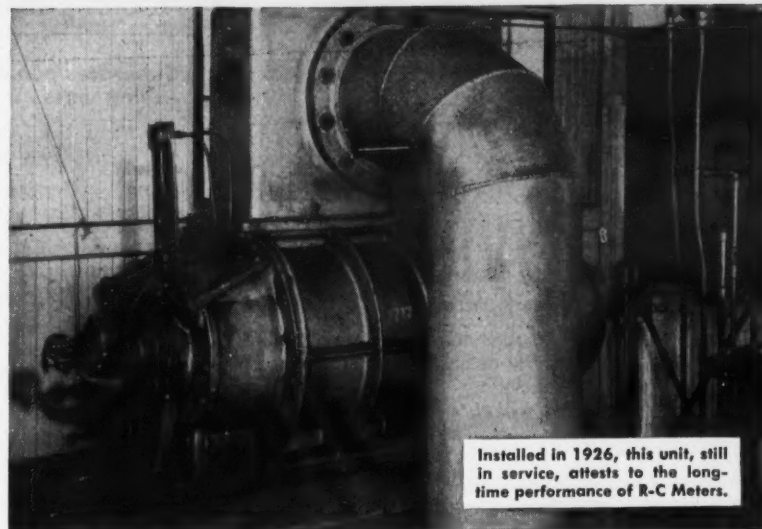
Color densitometer is a precision photometer

— in photography: density measurement of photographic materials (both color and black-and-white); and determination of color temperature. . . in chemistry: measurement of color ranges in chemical reactions; and measurement of liquid densities (both color and black-and-white).

In research: measurement of light sources; and measurement of lowest light levels. . . in industry: color determination of solid surfaces, such as textiles, paints, coated surfaces; and as a control instrument in processes using a spectrophotometer.

Further information on Macbeth-Ansco color densitometer is included in Bulletin 144.

Source: Product of the Macbeth Corporation, Dept. CP, Newburgh, N. Y. . . or for more information check CP 1654 on handy form, pages 2 and 3.



Installed in 1926, this unit, still in service, attests to the long-time performance of R-C Meters.

NO PENSION FOR THIS OLD-TIMER even after 23 years of service

Accurate and dependable as always, this 23-year-old Roots-Connorsville Meter still performs faithfully. No retirement for this veteran! Because new demands called for higher capacity, it has been transferred to another job in the same plant. Its old duties have been taken on by a new R-C unit, purchased because of fine performance of this old-timer.

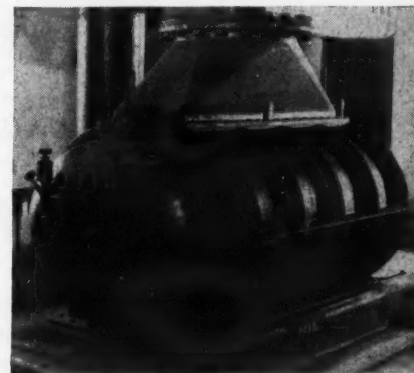
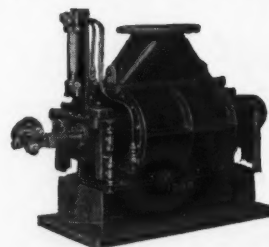
That's a common history of R-C Meters. They're built to measure accurately, and keep on doing it, year after year. Simple design, finely machined measuring surfaces and other important refinements account for their ability to measure gas accurately and unfailingly, almost indefinitely.

With 31 standard sizes and capacities from 4,000 to 1,000,000 cfh, R-C Meters meet the needs of most applications. Write for Bulletin 40-B-14 or tell us your specific requirements.

ROOTS-CONNERSVILLE BLOWER CORPORATION
511 Richland Avenue, Connorsville, Indiana

(Right) This R-C Meter, with capacity of 317,000 cfh, replaced the "old-timer" above, now transferred to other duties.

(Below) Typical small capacity R-C Meter for low and medium pressures.



ROOTS-CONNERSVILLE



ONE OF THE DRESSER INDUSTRIES

When inquiring check CP 1655 on handy form, pages 2-3

Save TIME · LABOR · DOLLARS
For use in Lab, Plant or both

Brookfield
SYNCHRO-LECTRIC
Viscometer

TEST STUDY VISCOSITY
CONTROL

As Simply, Quickly, Easily as Taking Temperature

Just a flick of switch, then read the Brookfield dial, and you have your viscosity determination in centipoises. The whole operation, including cleaning up, usually is accomplished in *less than a minute*.

Available in a variety of models suitable for extremely accurate work with a wide range of materials, both Newtonian and non-Newtonian, the Brookfield Viscometer is portable and plugs in any A.C. outlet — *can be used in lab, plant, or both*.

Write today for fully illustrated 8-page catalog.

NEW! Two motors and exclusive counter-rotating action make new Brookfield Laboratory Mixer quickest, most effective on market. Creates annular flow, provides scissor-like shearing, and stops messy slop-overs. Write for descriptive brochure "M".



Up to 48,000 scissor-like cuts per minute.

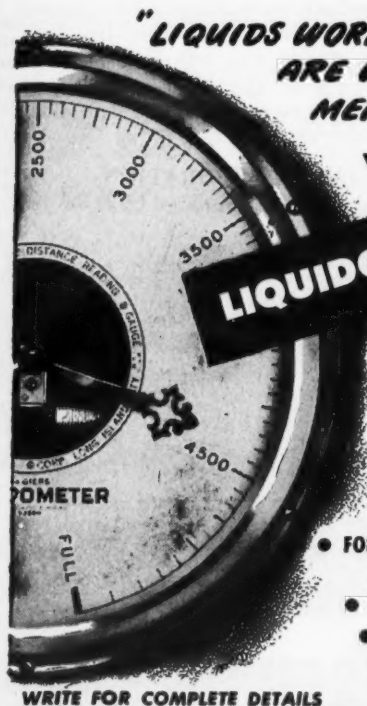
Brookfield ENGINEERING LABORATORIES, INC.
210 Porter St., Stoughton, Mass.

When inquiring check CP 1656 on handy form, pgs. 2-3

"LIQUIDS WORTH STORING ARE WORTH MEASURING"
with a

LIQUIDOMETER

Tank Gauge



- FOR GAUGING LIQUIDS OF ALL KINDS
- 100% AUTOMATIC
- APPROVED BY UNDERWRITERS' LABORATORIES

WRITE FOR COMPLETE DETAILS

THE LIQUIDOMETER CORP.
38-18 SKILLMAN AVE., LONG ISLAND CITY, N.Y.

When inquiring check CP 1657 on handy form, pgs. 2-3

PROCESS INSTRUMENTATION

Generates pulses for checking scaling units . . .

accuracy of the instrument is 5% over entire range; choice of 3 pulse widths and amplitudes

Uses: Generates pulses to be used for checking and testing scaling units and other pulse-controlled circuits.

Features: Accuracy of instrument is within the meter-reading accuracy of 5% over the entire range.

Description: The Model 1022 pulse generator provides pulses, either positive or negative, with a choice of 1, 10 or 100 microseconds width. Maximum pulse amplitude is 20 volts, in three ranges of 0 to 0.5, 0 to 5, and 0 to 20 volts full-scale reading. Variations in line voltage between 110 and 125 volts do not appreciably affect the output pulse.

On 60-cycle supply, pulse frequency is 60 per second. If an external oscillator is connected, pulse frequency may be varied between 10 and 200,000 pulses per second.

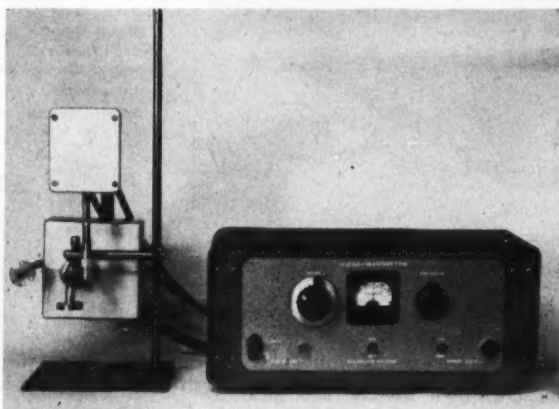
Source: Nuclear Instrument and Chemical Corporation, Dept. CP, 229 W. Erie St., Chicago 10, Ill. . . or for more information check CP 1658 on handy form, pages 2 and 3.

Measure of gas pressure is independent of gas composition . . .

micromanometer accurately measures gas pressures in the 0-150 micron range

Uses: For accurately measuring gas pressures in the 0-150 micron range. Applications include measurement of pressure in the sample introduction systems of mass spectrometers; measurement of pressure in a system in which the composition of the gas is variable; measurement of pressure drops across porous barriers; measurements of pressures of gases which may be harmful to other gauges because of corrosive or other action; and measurement of static pressures in high-vacuum stills and crystallizers.

Features: Micromanometer meets the need for a



Micromanometer reads the same whether pressure is due to water vapor, argon, or any other gas

gauge to provide not only pressure readings for condensable as well as noncondensable gases, but also readings which are independent of the composition of these gases. Since the reading is dependent only on the pressure of a gas and not its composition, the need for a special calibration chart for each gas is eliminated. In addition, whether the pressure is due to the presence

CONTINUOUS PROCESS CONTROL . . .

by Liquid Density

- FOR USE IN**
- BLENDING
 - MIXING
 - SEPARATION
 - DILUTION
 - CONCENTRATION OF INDUSTRIAL PROCESS LIQUIDS

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Trade Mark ®

NEW PRINCO DENSITROL INDICATES, RECORDS, AND/OR CONTROLS LIQUID DENSITY. This rugged plant production tool has the sensitivity of a laboratory instrument, can be adapted to ranges as small as 0.005 density full scale.

Write for Bulletin W-10 or outline your requirements direct to



PRECISION THERMOMETER & INSTRUMENT CO.
1404 Brandywine St., Philadelphia 30, Pa.

When inquiring check CP 1659 on handy form, pgs. 2-3

Test Abrasion Resistance

Taber

ABRASER Model 140

New instrument to test wear resistance of fabrics, protective coatings, plating, plastics, rubber, etc.

Incorporates proven rotary rubber wear action of dual abrading wheels, simulating wear under actual service conditions.

Write for new literature.

TABER INSTRUMENT CORP.
106 Goundry Street
North Tonawanda, N. Y.

Two Models
\$325 to \$650

When inquiring check CP 1660 on handy form, pgs. 2-3

For quick, accurate

CHECK ON PROCESS GASES

USE RANAREX

Whenever the specific gravity of a gas is a guide to a chemical reaction or process, Ranarex can be used to indicate, record or control it. Find out now how this accurate, low-cost instrument can help you!

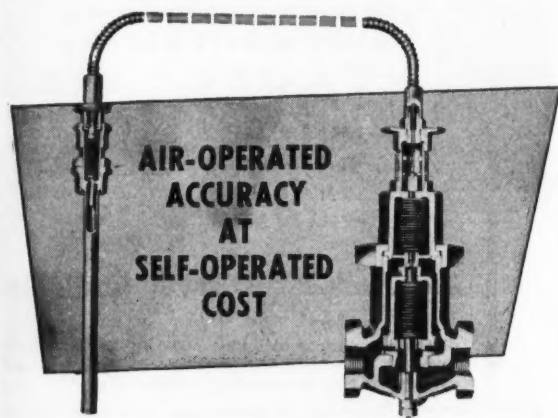
Write to The Permutit Company, Dept. CP 11, 330 West 42nd St., New York 18, N. Y.



RANAREX

PRODUCT OF THE PERMUTIT CO.

When inquiring check CP 1661 on handy form, pgs. 2-3



**AIR-OPERATED
ACCURACY
AT
SELF-OPERATED
COST**

Self-operated Farris Stacon Temperature Regulators* make possible unheard-of control accuracy—to within plus or minus 1 deg. How? Because liquid in the bulb flashes to vapor in power bellows. Steam does 99 per cent of the work . . . instantly. Balancing bellows eliminates spring counterpoise and packing glands . . . prevents response to variations in steam temperatures . . . provides free-floating valve disc.

Compact, trouble-free, dirt-proof, hermetically sealed Stacon Regulators operate consistently in the worst possible surroundings—require no maintenance. To learn more about the most sensitive, accurate, economical temperature regulator available, write for Stacon Bulletin 50-1000.

*Patented

6690

Farris Stacon Corp.

406 COMMERCIAL AVE. PALISADES PARK, N. Y.

When inquiring check CP 1662 on handy form, pgs. 2-3

NOVEMBER, 1950

PROCESS INSTRUMENTATION

of water vapor, argon, or any other gas, the reading is the same.

Description: Model 23-105 micromanometer is a pressure-sensitive condenser utilizing a stainless steel diaphragm as one of the plates. Gauge forms one arm of a capacitance bridge which is balanced to a null when the pressures on each side of the diaphragm are equal and close to zero microns.

In operation, the gas whose pressure is to be measured is introduced to one side of the diaphragm. Movement of the diaphragm, due to the pressure differential on the two sides, cause an unbalance in the bridge. An electrostatic restoring force is applied to the diaphragm by an adjustable DC voltage, thus rebalancing the bridge as evidenced by a null on the panel micromanometer. Magnitude of the restoring voltage is read on the duo-dial, and the reading is converted to microns of pressure by a calibration chart or simple formula.

Typical specifications of Model 23-105 when used in conjunction with a mass spectrometer introduction system operating at room temperature are tabulated:

Pressure range	0.1 to 150 microns
Minimum detectable pressure change	0.1 micron
Reproducibility (8 hr)	0.3 micron
Linearity	0.2%
Maximum overload	1 atmosphere abs. on either side of diaphragm
Power consumption	30 watts @ 115v AC

Source: Product of the Consolidated Engineering Corporation, Dept. CP, Pasadena, Calif. . . . or for more information check CP 1663 on handy form, pages 2 and 3.

Ranges of hand tachometer are new . . .

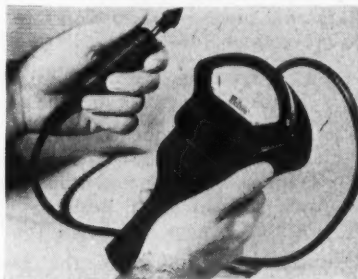
electric device measures speeds from 100 to 5000 rpm and 10 to 500 fpm without adapters

Uses: Measuring speeds encountered in motor and generator testing, process control and maintenance work. With special adapters, tachometer is suitable for certain special applications.

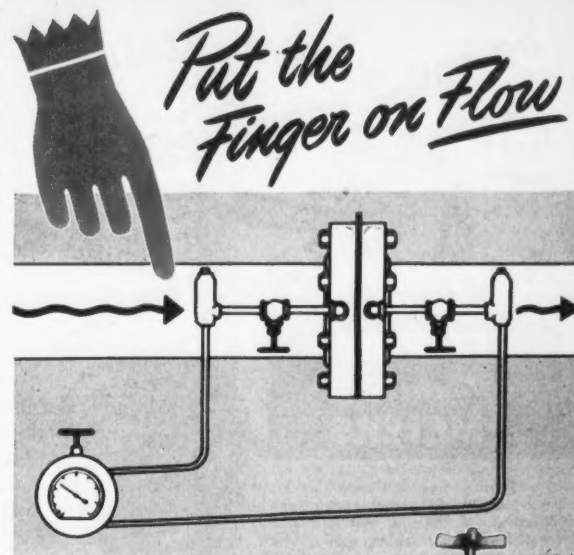
Features: Has new speed measuring range of 10-100, 20-200, 50-500 fpm, and 100-1000, 200-2000 and 500-5000 rpm, without adapters. With adapters, speeds as low as 20 rpm and as high as 50,000 rpm may be measured.

Description: Hand tachometer can be used for acceleration tests because of its quick response. It contains a self-calibrating check circuit, has low operating torque, and is undamaged by overspeeding or selection of wrong range. Supplied in carrying case complete with accessory tips, extension. fpm discs and instructions.

Source: Type 25D hand tachometer is a product of Metron Instrument Company, Dept. CP, 432 Lincoln St., Denver 9, Colo. . . . or for more information check CP 1664 on handy form, pages 2 and 3.



Hand tachometer has new ranges



WITH BUILDERS FLO-GAGE



This midjet differential meter shows you the rate of flow of liquids, steam, air, and gases through differential producers — orifice plates, Venturi Tubes, or Insert Nozzles. Don't guess about flow when it's so easy and economical to get the true flow story with Flo-Gage.

FLO-GAGE Features:

Instant response; accurate; low cost; easy to install; easy to read; compact; protected against overloads, surges, reverse differentials.

For engineering information and Bulletin 310-G1, address Builders-Providence, Inc. (Division of Builders Iron Foundry), 387 Harris Ave., Providence 1, Rhode Island.

BUILDERS makes a complete line of flow meters and controllers for liquids, steam, air, gas, and dry materials . . . mechanical and differential . . . including The Venturi Meter and Chlorinizers (chlorine gas feeders).

BUILDERS PROVIDENCE

When inquiring check CP 1665 on handy form, pgs. 2-3

Page 59

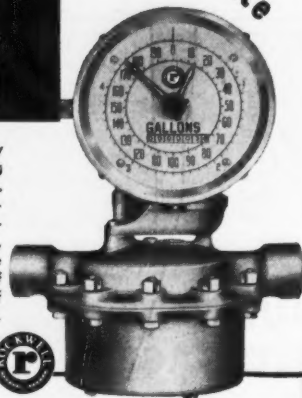
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OIL LIQUORS PAINT SOLUTIONS CHEMICALS

For Accuracy and Convenience

USE EMPIRE Industrial METERS

You'll save time and money blending, batching, processing liquids with Empire meters. You'll get exact quantity control, quick! You'll cut evaporation loss, reduce fire hazards, prevent contamination. Pipe sizes, 1/2 in. - 3 in. a variety of registers. Automatic shut-off available on some models. Write for bulletin.



Dept. N

ROCKWELL MANUFACTURING COMPANY
Pittsburgh 8, Pa.

When inquiring check CP 1666 on handy form, pgs. 2-3



The new CALIBRATED DIAL now available on Leslie Class T and Class M Temperature Regulators provides quick, easy and dependable temperature settings.

Features

- ★ **TIME SAVING**—Just turn the dial to the desired setting—no waiting for equipment to heat up to find out if setting is correct.
- ★ **SAFE**—Avoids costly overheating caused by guess setting.
- ★ **RUGGED**—Designed for production line use where frequent dependable readjustments are necessary.
- ★ **SIMPLE**—Fits in place of standard adjusting sleeve. No complicated mechanism to go out of order.

LESLIE Temperature Regulator Class MCC-1



SEND FOR — copy of
Temperature Regulator Bulletin No. 464B
281 Grant Ave. • Lyndhurst, New Jersey

PRESSURE REDUCING VALVES • PRESSURE CONTROLLERS
FLOATLESS LEVEL CONTROLS • PUMP GOVERNORS
TEMPERATURE REGULATORS • SELF CLEANING STRAINERS
AIR HORNS • STEAM WHISTLES

PROCESS INSTRUMENTATION

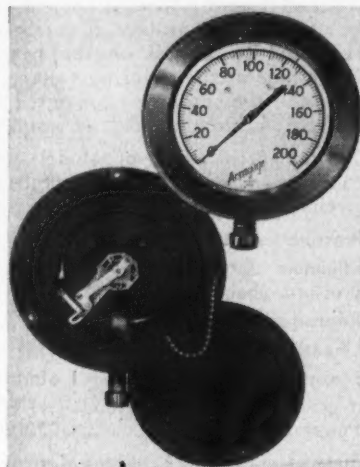
Blow-out disc relieves pressure in gauge case if bourdon tube ruptures . . .

solid front of case prevents fracture of glass lens

Uses: For indicating pressures from 30" vacuum to 80,000 psi.

Features: Solid front type of gauge case incorporates a solid cast web backing-up the dial, with the entire back of the gauge case covered by a waterproof blow-out disc with bonded Buna N Seal. In the event of bourdon tube rupture due to overpressure, corrosion, or any other factor, the blow-out disc relieves the pressure in the case. Pressure is relieved if case pressure reaches between 1/4 and 3 psi, depending on the size of the case and the type of connection, bottom or back.

Solid front restrains such pressure within the case and prevents fracture of the glass lens.



Mechanism is inspected without removing dial

Description:

Sizes range from 4 1/2 through 10" in both surface mounting and flush mounting designs. Gauges are available with all types of bourdon tubes; standard movements are either stainless steel, or nylon and stainless steel, the latter being particularly desirable for high frequency pulsation service.

Removal of the waterproof disc exposes the entire mechanism for inspection, repair, or recalibration without removing the dial.

Source: Clapp Instrument Company, Dept. CP, Webster, Mass. . . or for more information check CP 1668 on handy form, pages 2 and 3.

Puts only enough pumps on line to meet flow demands . . .

pump sequence control affords efficient use of power, eliminates lost time when flows are not capacity

Uses: Pump sequence controller is designed especially for bulk station and loading rack applications — automatically starts and stops pumps as flow demand changes in main pump header. Handles any number of pumps in system, and flows from 1/2 to 6000 gpm.

Features: Simplicity is the keynote of controller. Stops power waste when pumps are running and no drums, trucks, tank cars, or barges are loading; also eliminates time waste when the terminal is jammed with receivers, and insufficient pumps are running to meet capacity operation.

Description: "Ori-Flowrator" pump sequence control consists of two components — an accurate flow meter and a contact element. The meter is a new application of the orifice or differential principle, making use of a kinetic manometer rather than a static

for close check on surface temperatures

**Alnor
PYROCON**



Wherever a close and frequent check on low surface temperatures must be maintained on machines and materials, you'll find the handy Portable Pyrocon a valuable instrument.

It is unexcelled for fast, accurate temperature readings of any surface, flat or curved, stationary or revolving. It may be used with plastic materials, waxes, rubber, liquids, oil or grease, molten soft metals, etc. The rugged Pyrocon can bring laboratory accuracy to your temperature measurement—at low cost. Write today for details on wide selection of thermocouples and extension arms.

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Room 504, 420 N. LaSalle Street, Chicago 10, Illinois

Alnor

PRECISION INSTRUMENTS
FOR EVERY INDUSTRY

When inquiring check CP 1669 on handy form, pgs. 2-3



Lumenite Electronic Liquid Level Controls

prevents overflow of tanks, vats, boilers etc; ends overflow loss; avoids damage to boilers and kettles, etc. by preventing burning dry.

Operates by electronics: Less than 1 V. — 1/100,000 Amp.

Temperature changes or extremes do not affect action.

Completely sanitary — easily sterilized.

Absolutely accurate.

Needs no attention.

Whatever your problem there is a Lumenite Electronic Liquid Level Control to solve it. Write us for details.

Lumenite Electronic Company

407 S. Dearborn Street Chicago 5, Ill.

When inquiring check CP 1670 on handy form, pgs. 2-3

CHEMICAL PROCESSING

When inquiring check CP 1667 on handy form, pgs. 2-3

type. Kinetic type is particularly useful for pump sequence control because it yields a linear scale and a wide range, contrasting it with square root scale and limited range of the static type manometer.

Contact element is equally as simple as the meter. The one moving part of the meter — the float — is simply a stainless steel disc with a thin nickel alloy rod extending from its center into a closed-top tube mounted above the meter. As the disc moves vertically in the bore of the meter's Pyrex tube with changes in flow, the nickel rod passes through flat coils surrounding the closed-top tube.

Coils are located at pump cut-in points. Changes in impedance as the nickel rod passes through coil is picked up in a thyatron circuit and used for ultimately controlling the operation of the required pump. Coil location is easily changed to vary contact points.

Operator can manually control the first pump and have all others added automatically on a demand basis, or a pressure switch can be used to operate the first pump on any loss of pressure occurring when line is opened wide.

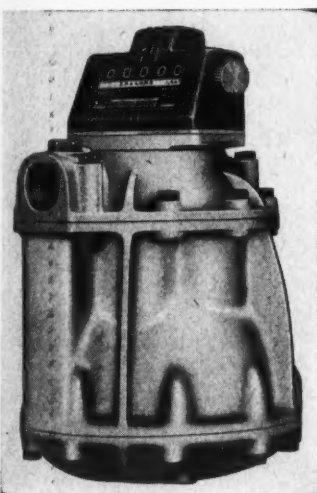
Complete information on pump sequence control is contained in manufacturer's Bulletin A-8A-4.

Source: Product of the Fischer & Porter Company, Dept. CP, Hatboro, Pa. . . or for more information check CP 1671 on handy form, pages 2 and 3.

Adds 2" size to line of positive-displacement flow meters . . .

handles materials that were formerly too dry or too corrosive to measure

Uses: Meter is suitable for measuring the flow of a wide variety of industrial liquids and petroleum products at 110 gpm and maximum pressure of 125 psi.



Flow meter offered with choice of 3 different dials

Features: Two-inch size is a new addition to maker's line of Figure 460 "Xacto" meters. Other sizes are for $\frac{3}{4}$ and $1\frac{1}{2}$ " pipe.

Description: Meter is a positive-displacement type having 5 vertical pistons. Interior parts are constructed of either carbon steel or stainless steel. Metal-to-metal contact at friction points is eliminated. This construction permits handling materials that are dry or corrosive.

Cylinder block and bowl is available in cast iron or bronze. Dial types that can be supplied include direct-reading, pre-determined-quantity, or ticket-printing.

Source: Two-inch flow meter is a product of Bowser, Inc., Dept. CP, Fort Wayne, Ind. . . or for more information check CP 1672 on handy form, pages 2 & 3.

Now—Simpler, Faster, Automatic Titrations!



SIMPLE OPERATION: In a series of titrations, simply fill the burette, place the sample in the beaker—and the Beckman Automatic Titrator takes over from there. Raising the beaker holder into position automatically starts the stirrer motor and begins delivering titrating solution into the sample.

A special circuit electrically anticipates the approaching end point, scaling down delivery of the titrating solution in progressively smaller increments to assure a highly accurate titration. When the end point is reached, delivery of the titrating solution stops and a light shows completion of the titration—all automatically and without attention from the operator.

Whether your laboratory is large or small the Beckman Automatic Titrator provides important advantages in your titration operations . . .

► It releases the technician during titration, enabling him to perform other operations

Here's another new Beckman advancement in instrumentation—an instrument that runs your titrations for you. It's the Beckman Automatic Titrator—the instrument that makes accurate titrations more rapidly and conveniently than by manual methods.

such as preparing samples, or calculating results.

- It eliminates the fatigue caused by close observation required in manual procedures.
- It gives objective, reproducible results . . . eliminates errors due to personal factors.
- It provides time-saving conveniences for sample handling.



For full details on this new Beckman instrument see your authorized Beckman dealer—or write direct. Beckman Instruments, National Technical Laboratories, South Pasadena 11, California.

Factory Service Branches:
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BECKMAN INSTRUMENTS
control modern industries

Beckman Instruments include: pH Meters and Electrodes — Spectrophotometers — Radioactivity Meters — Special Instruments

PERFORMS A WIDE VARIETY OF TITRATIONS—Neutralization, Oxidation-Reduction, Precipitation, Complex-Formation and other types.

NO SPECIAL TRAINING IS REQUIRED—rapid and accurate titrations can readily be performed without special skill or technique.

QUICK, SIMPLE OPERATION—completes many routine titrations in only 1-1½ minutes—even titrations to 0.1% accuracy in 2½ minutes or less. Change of sample is simple, rapid—a single motion raises, locates and secures new sample in operating position.

CONVENIENT, VERSATILE, ADAPTABLE—0° to 100° C temperature compensation . . . adjustable holder accommodates 10 ml to 400 ml beakers or similar vessels . . . instrument may be used with all standard burettes down to 5 ml . . . as many as four delivery units accommodated by single amplifier control unit . . . uses standard Beckman electrodes . . . electrode holders and delivery tip can be pivoted into any required position . . . ample provision for mounting heating devices or other special equipment.

ALSO A RELIABLE pH METER—the Beckman Automatic Titrator can also be used as an AC-powered pH meter to give accurate readings over the range 0 to 14 pH, as well as millivolt readings from -600 to +1400 mv.

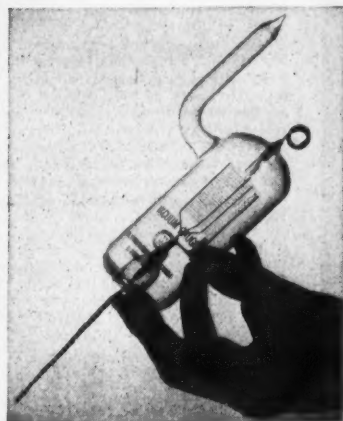
**Measures pressures to
 5×10^{-10} mm Hg . . .**

ionization gauge resembles a triode vacuum tube in structure

Uses: Intended for measuring pressures as low as 5×10^{-10} mm Hg.

Features: Ionization vacuum gauge is a recent development of this manufacturer.

Description: Gauge, designated as PR 7198-331, resembles a triode vacuum tube in structure. It has



Ionization gauge is 2" diameter by 5" high

the conventional three elements—filament, grid, and ion collector—inverted in arrangement. Two filaments (one is spare) are outside cylindrical grid; fine wire ion collector is suspended within grid.

Volume enclosed by grid is comparable to that between grid and plate of an ordinary ionization gauge.

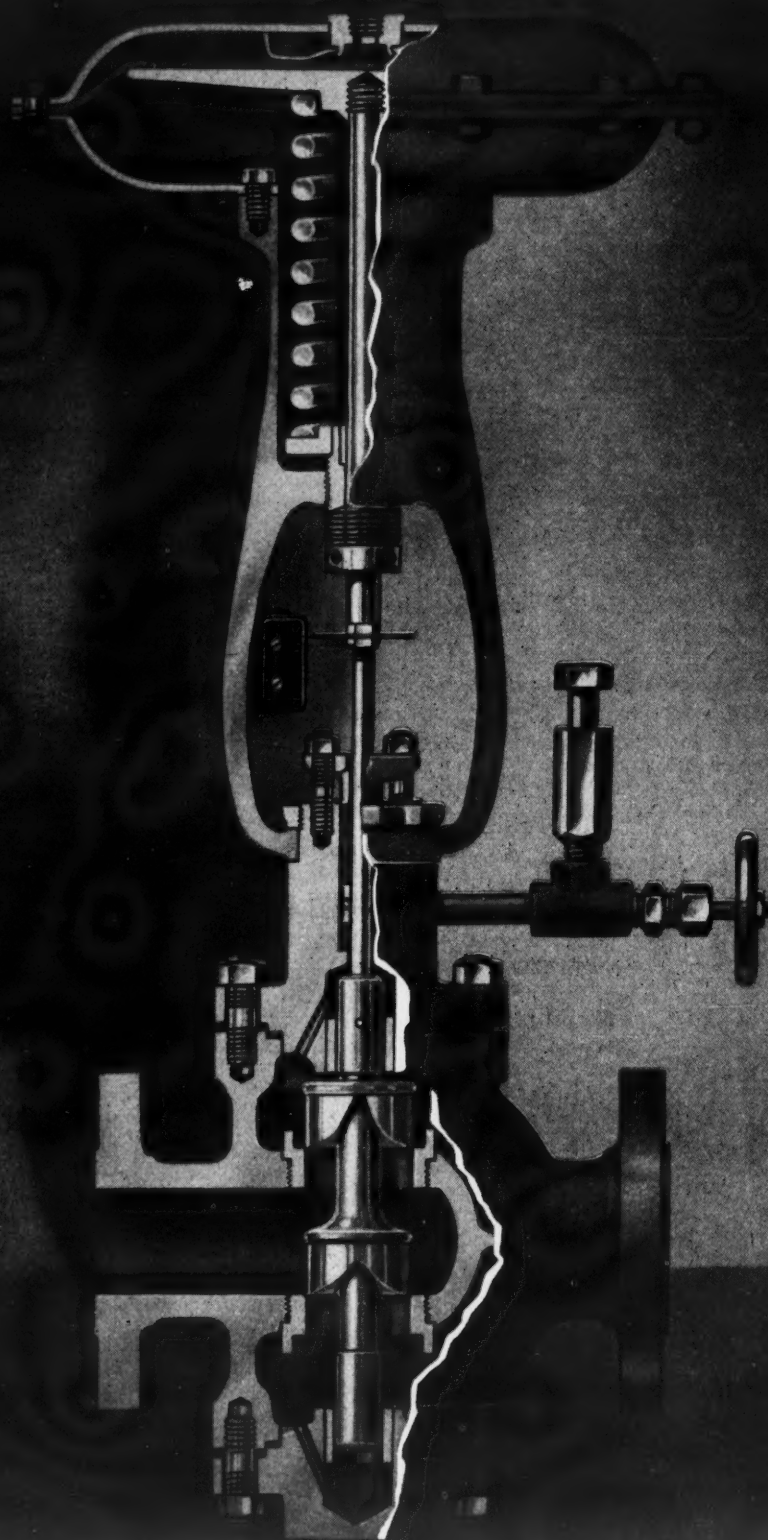
Positive potential on grid forms a barrier to ions formed inside the grid-enclosed volume so they are eventually collected at center wire. Ion collection efficiency is also comparable to that of the conventional ionization gauge. Since the number of ion collisions for a given electron current is considered proportional to gas density, current on the ion collector is thus a measure of the pressure.

Metallic surface in the gauge is reduced to a minimum, making it easy to outgas the elements by electron bombardment at temperatures above 1000°C with less than 100 watts power. Hard glass enclosure of gauge is 2" diameter and 5" high.

Gauge can be operated on standard power supplies, and will be furnished with special tabulation for direct reading to various types of glass systems.

Source: Product of the West-

Attention to Detail



In design and manufacture pays off in

MASONEILAN *Air Operated* **CONTROL VALVE** **PERFORMANCE**

The new Masoneilan Control Valves are outstanding examples of the results obtained by thorough attention to design details and exacting standards in manufacture.

In design they represent endless studies, untiring laboratory testing and the accumulated experience gained in actual field service for over half a century — the know-how which enables Masoneilan specialists in valve design to attain the optimum compromise between the ideal and the practical, consistent with the end use.

In manufacture they are the product of the most modern precision manufacturing equipment, the best known methods and skills of experienced operators, constantly checked during and after processing and assembly by rigid inspection standards, with specially designed gauging equipment.

The result is a valve which gives you the performance that you have a right to expect.

We invite your detailed inspection — note the care taken to insure stem, seat rings, plug, bonnet and blindhead alignment, the responsive and powerful diaphragm motor, resistance to corrosion, adequate lubrication. Note, also, the *extras* which provide so much practical usefulness — the indicator plate graduated in $\frac{1}{8}$ -inches actual travel; the serial plate which gives you *full* valve specifications, the external adjusting screw for setting spring initial; the yoke detachable without disturbing bolted stuffing box; the open structure providing ample room for servicing stuffing box and attaching positioner take-off linkage; the two integral mounting pads for controller or positioner and air regulator-filter dripwell.

Practical engineers will appreciate Mason-Neilan's realistic approach to the control valve problem — and Mason-Neilan's latest answer. May we send you our new bulletin?

MASON-NEILAN REGULATOR CO.

1203 ADAMS STREET, BOSTON 24, MASS., U. S. A.

Sales Offices or Distributors in the Following Cities: New York • Syracuse • Chicago • St. Louis
Tulsa • Philadelphia • Houston • Pittsburgh • Atlanta • Cleveland • Cincinnati • Detroit
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Denver • Appleton, Wisconsin
Mason-Neilan Regulator Co., Ltd., Montreal and Toronto

MASONEILAN

REG. U. S. PAT. OFF.

*These Valves Meet the Rigid Requirements and
Specifications of the Most Exacting Users*

PROCESS INSTRUMENTATION

inghouse Electric Corporation, Dept. CP, 305 Fourth Ave., Pittsburgh 30, Pa. . . or for more information check CP 1674 on handy form, pages 2 and 3.

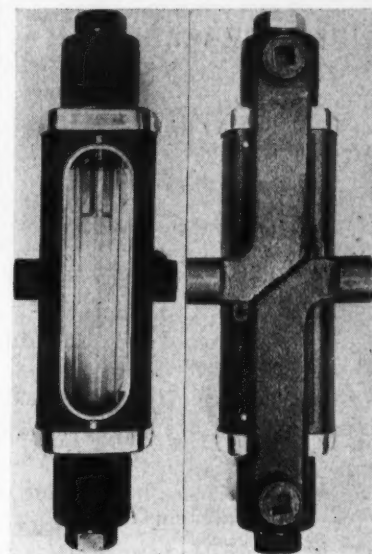
Adapts flow meters for horizontal lines . . .

accessory eliminates vertical pipe rises; aids meter reading

Uses: Adapter makes it possible to install maker's "Flowrator" flow meters in horizontal process piping systems.

Features: Eliminates the necessity for having a vertical rise in a line where headroom is at a premium, just for the sake of flow meter installation.

Eye-level flow indication for accurate instrument reading is now possible



Adapter makes flow meter suitable for use in horizontal lines

with these meters, whereas, necessity of vertical pipe runs often made it impossible previously.

Description: Horizontal line adapter is constructed of a number of corrosion-resistant materials, and can be supplied for use with all of maker's standard flowmeters.

Catalog 25 describes the use of this accessory.

Source: Fischer & Porter Company, Dept. CP, 25 County Line Rd., Hatboro, Pa., is the maker. . . or for more information check CP 1675 on handy form, pages 2 and 3.

For more information on product at left, specify CP 1676 . . . see information request blank between pages 2-3.



for narrow aisles

for freight cars

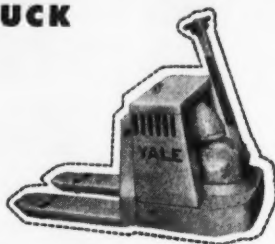
**NOW
"STUBBY!"**



for highway trucks

A SHORTER YALE WORKSAVER ELECTRIC TRUCK

Only "Stubby"
WorksaVERS
have all these
advantages



- 6 inch shorter length
- Power-packed Drive Unit with improved motor efficiency
- New, Better Hydraulic "Dual-Lift" Mechanism
- Operational Controls centrally located on handle
- Easy steering, ball bearing steering ring with self-aligning features
- Doubly safe positive acting Safety Brake
- Widely spaced, floor protecting dual trailing wheels
- Large diameter long wearing drive wheel
- Double Battery Protection
- No Flexing of Electrical Wires in handle control
- Spark Enclosed Features available

Write for bulletin P-1206 (Platform Type) or P-1207 (Pallet Type), today!

THE YALE & TOWNE MANUFACTURING CO.
ROOSEVELT BOULEVARD PHILADELPHIA 15, PA.

M-22



When inquiring check CP 1677 on handy form, pgs. 2-3

Fork Trucks, Floor-level Roller Conveyors Team Up to Handle Heavy Pallet Loads

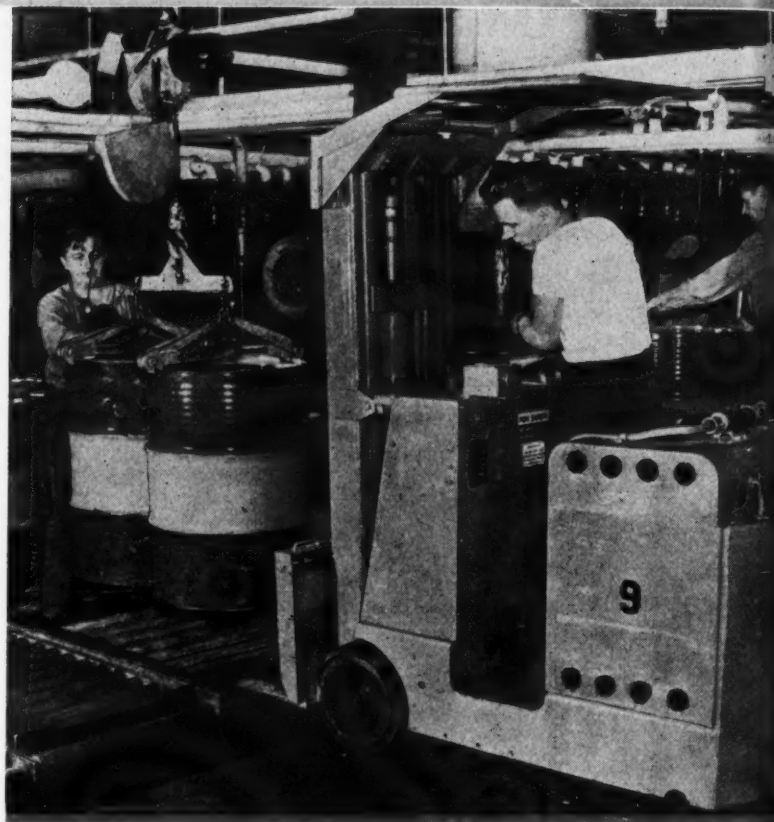
Refinery moves drums and case lots of canned oil in and out of elevators for storage or shipment

PROBLEM: Philadelphia refinery of Gulf Oil Corporation found that manual material handling prevented efficient floor space utilization, and was slow and costly. For example, in loading cased lots of canned oil into highway trucks and trailers, cartons were manually stacked on four-wheel trucks for transfer to loading platform and stacking in trailer. The latter work was also entirely manual. Similar manual transfer and stacking was also the practice in loading box cars. Large 54-gal drums were also handled manually and, because of their weight, could only be stored one-high. Thus, overhead space was not fully utilized.

Solution: A fleet of eleven electric trucks has taken over most of the operations that were formerly performed manually. Seven of these are of the fork type, each of 3,000 lb capacity, and each equipped with telescopic lift which raises loads up to 10' above the floor. Other equipment consists of electric powered hand pallet trucks which move loads from point to point, or stack loads for full utilization of floor or shipping space. In the packaging department, manual handling has been reduced. Cases are removed from delivery end of automatic packaging machine line and placed on pallets in locked loads. Cases contain either 24 one-quart cans or 4 five-quart cans. Pallet loads are then picked-up and moved by fork trucks to 1) temporary storage waiting shipment, 2) loading docks where they are placed in highway trucks or trailers, or 3) directly into box cars for shipment by rail.

Drums, also, are handled by fork truck. As drums move from filling machines along floor-level roller conveyors they are picked at the discharge end by an electric hoist. By means of grab clamps, hoist moves and spots two drums at a time on pallets. Pallet loads may then be moved by truck to shipment or storage. In spotting pallets for storage, they are easily tiered two-high.

One of the innovations that speeds handling operations and saves labor is the installation of floor-hugging roller



Drums are placed on pallet by grab-equipped hoist, for transfer to storage or shipment

conveyors immediately in front of elevator shaftways, and placement within elevator cars of similar conveyors. This eliminates delays as loads may be picked up or discharged by elevators without aid of trucks to move pallets. In carrying out the same basic idea on shipping platform, roller dollies are used on floors of highway trucks.

Results: Handling crews now move more tons per man hour with much less effort. Utilization of floor space is increased as much as 50%. By use of palletized loads, canned oil in cases is now shipped in box cars without dunnage. Man hours in loading trailers and box cars has been reduced 50%. Before floor conveyor installations in front of elevators and in elevator cars, only two pallets per trip could be handled. Now three pallets at a time are accommodated.

Source: Electric Industrial Truck Association, Dept. CP, 3701 N. Broad St., Philadelphia 40, Pa. . . . or for more information check CP 1678 on handy form, pages 2 and 3.

Wide choice of specs broaden applications of swivel, rigid casters . . .

construction extends the service life of this series

Uses: Casters are recommended for use on live skids assembly stands, parts trucks, heavy machinery, racks, dollies, etc.

Features: Series 41 and 42 casters are formed by a cold forging process which promotes long-wearing qualities. The 500 Series casters owe their longevity to a hardening process.

Description: Series 41 and 42 casters are available in 4 wheel sizes, in both swivel and rigid types. Wheels offered include steel, plastic, and soft or hard rubber, with carrying capacities ranging from 260 to 900 lb. All are fitted with Zerk-type lubrication fittings. Wheel sizes are 4-, 5-, 6-, and 8-inch. Series 41 have 4 x 5" top plate with slotted bolt holes; Series 42 have 4 1/2 x 6 1/2" top plates, also with slotted bolt holes.

The 500 Series casters are equipped with 2 1/2"-wide wheels with diameters of 4-, 6-, 8-, or 10-inch, in swivel or rigid types. Wheels are steel, plastic, molded-on rubber, or V-track. Size of top plate is 5 1/4 x 7 1/4".

Source: Casters are a product of The Rapids-Standard Co., Inc., Dept. CP, 342 Rapistan Bldg., Grand Rapids 2, Mich. . . . or for more information check CP 1679 on handy form, pages 2 and 3.

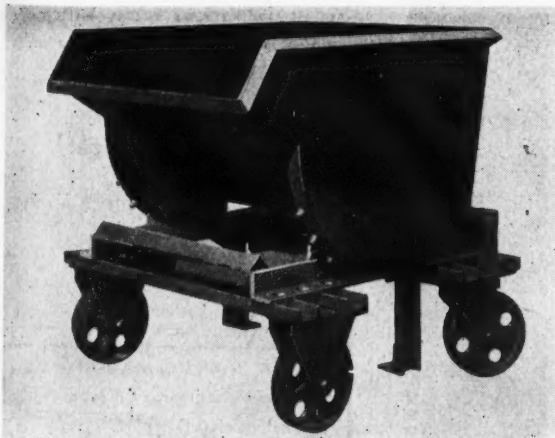
Move, dump materials quickly with wheel-type units . . .

dumping simplified by rocker geared to track; units furnished in size specified by user

Uses: For handling a wide variety of materials, including those that are extremely heavy in proportion to their bulk.

Features: Dumping is simplified by a rocker geared to a track. A safety latch locks during loading.

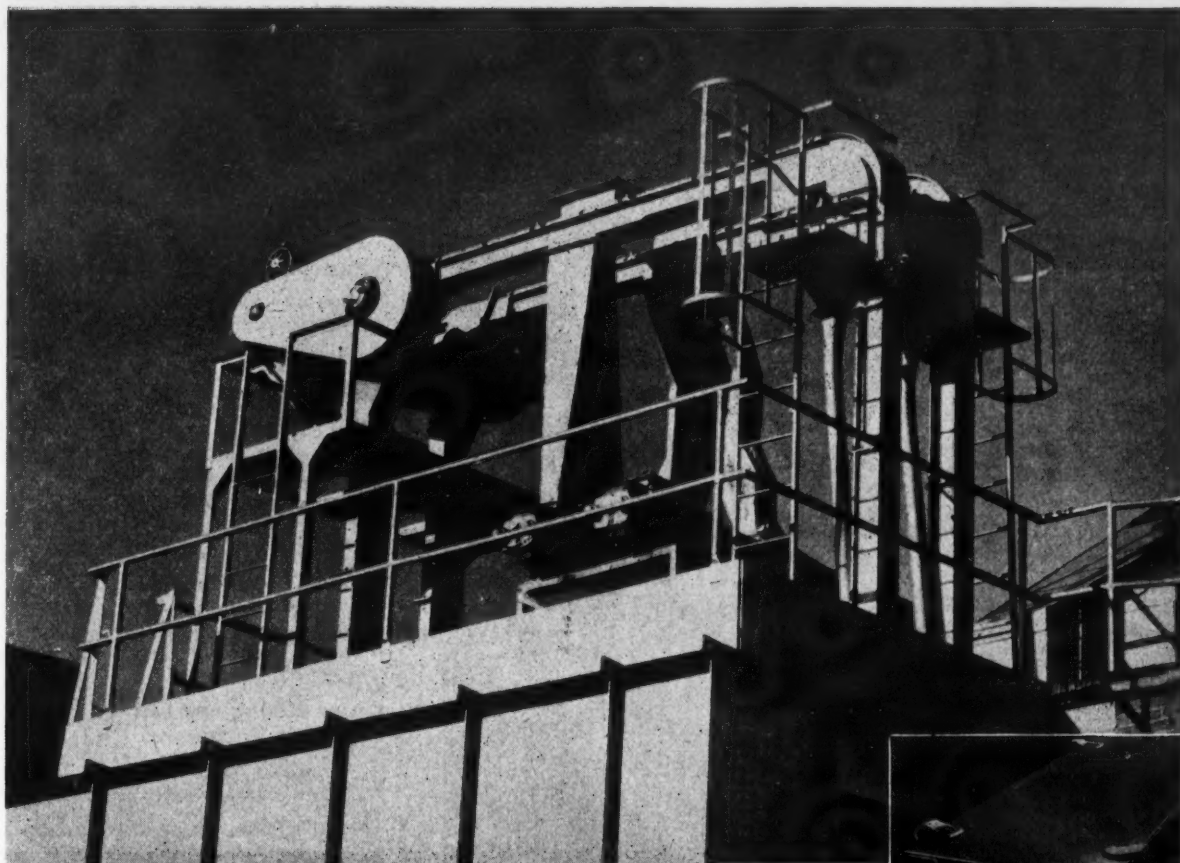
Description: Units may be handled by platform or fork truck, and wheels give convenience of movement



End dump with wheels

in crowded plant areas and narrow aisles. Two wheels are stationary and two are swivel casters. Dumping is fast and precise. Construction is heavy steel plate, reinforced with angles and channels; all-welded fabrication. Size may be specified by customer.

Source: Palmer-Shile Co., Dept. CP, 16016 Fullerton St., Detroit 27, Mich. . . . or for more information check CP 1680 on handy form, pages 2 and 3.



Protecting Fine Materials from Hopper to Storage...

**NO CONTAMINATION! NO SPILLAGE! NO ESCAPE!
WITH REDLER CONVEYORS AND ELEVATORS!**

Merck & Company, Inc., manufacturing chemists, required handling equipment to protect materials against contamination, to prevent loss by spillage and to guard against escape of materials into the atmosphere. S-A engineers designed and installed the simple, compact, space-saving REDLER Conveyor-elevator system pictured above, two-thirds of which is out-of-doors. It successfully meets every requirement—operates efficiently and economically, day-in and day-out! . . . If you have a material handling problem—if your equipment is less than demanded by today's high production, you will do well to draw upon the 50 years of practical, specialized experience available to you through the S-A engineering and manufacturing service. Write today, without obligation for complete information.

STEPHEN S-A DAMSON

11 Ridgeway Avenue, Aurora, Illinois



Los Angeles, Calif. • Belleville, Ontario

MERCK & CO. Inc. (Stonewall Plant)
ELKTON, VIRGINIA

Two different raw materials are dumped into double loading hoppers on the first floor of the building. Two vertical, closed-circuit REDLER elevators with short 10-foot long, horizontal feed sections of casing under each hopper pick up materials and elevate them about 56 feet thru the roof of the building to a point where materials are transferred to two horizontal REDLER conveyors. One of the horizontal conveyors is 36 feet long and the other is 45 feet long. The horizontal REDLERS extend over large storage bins and discharge materials thru gate controlled chutes to storage. Upper half of elevators and all of horizontal conveyors are out-of-doors and weather-tight REDLER construction is a big advantage in protecting materials. REDLERS include the following advantages: (1) dust-tight and weather-tight casings protect materials and prevent loss, (2) compact design permits simple, space-saving installation.

DESIGNERS AND MANUFACTURERS OF ALL TYPES OF BULK MATERIALS HANDLING EQUIPMENT

When inquiring check CP 1681 on handy form, pgs. 2-3



**You'd never
know
it's there!**

**This SEALED GEAR DRIVE
guarantees 4-times longer life
for the Stuebing Hydroelectric.**

Requires no maintenance... no upkeep... and only minimum attention. The Sealed Gear Drive in the Hydroelectric Lift Truck is Stuebing engineered to give exclusive maximum service life without fuss or bother. It's an exclusive feature which eliminates the main cause of excessive repairs and costly downtime in truck operation. All gears and running parts are sealed in lubricant. It is the supreme automotive type differential gear drive.

Only Stuebing engineered lift trucks give you this sealed gear drive, plus four-wheel stability, easy steering and twin front driving wheels.

Bulletin K-48 gives convincing money-saving facts on the patented Stuebing Hydroelectric. Write for your copy.

Lift Trucks Incorporated

Engineered by W. C. Stuebing, Jr.
2425 Spring Grove Avenue
Cincinnati 14, Ohio

When inquiring check CP 1682 on handy form, pgs. 2-3

MATERIAL HANDLING

**Metal bands dispensed
to required length
by cutter . . .**

models hold and cut 1 or 2 coils of metal band used to reinforce containers and brace shipments

Uses: Device which holds and cuts to length 1 or 2 coils of metal band used to reinforce shipping containers and to brace carload shipments.

Features: Actuated by single downward stroke of 30" hand lever. Shear mechanism consists of tool steel blades, easily accessible for service or replacement.

Description: Any 2-coil combination of $\frac{3}{4}$, $1\frac{1}{4}$, or 2" metal band in all thicknesses can be handled. Optional equipment modifies device for $\frac{3}{8}$ " bands. Mobile model is 36" high, $18\frac{3}{8}$ " wide, and 42" long, weighing 174 lb. It is equipped with towing handle and rubber casters. Compartments are built-in for tools and accessories. Stationary model measures 34" high, $9\frac{1}{4}$ " wide, and 33" long. It weighs 144 lb.

Source: Mobile Model E4DO and stationary Model E4CO are made by Acme Steel Company, Dept. CP, 2840 Archer Ave., Chicago 8, Ill. . . . or for more information check CP 1683 on handy form, pages 2 & 3.

**Order picking and storing
simplified by rack . . .**

items of order are placed on mobile rack, which is then stacked until carrier is ready

Uses: Dolly rack of stacking type, designed primarily



Dolly racks being stacked by fork truck

for order picking, assembly, and storage in warehouses.

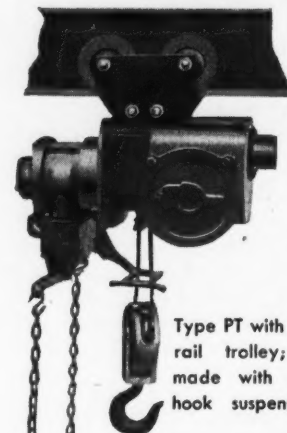
Features: Rack can be pushed by hand, pulled in trains, or stacked.

Description: Rack is pushed by hand while assem-

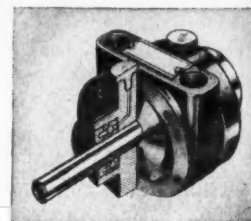
**NEW! PNEUMATIC
HOIST**

**with ROTARY TYPE
AIR MOTOR**

**Capacities 250# - 2000#
Fast Lifting Speeds**



Type PT with mono-rail trolley; also made with upper hook suspension.



Pulseless, sliding vane, rotary air motor; no pistons, no reciprocating parts.

- Worm Geared
- Compact—Light Weight
- Exceptionally Smooth Running
- Close, Sensitive Control

Write for further information

DETROIT HOIST & MACHINE CO.
8224 Marrow St., Detroit 11, Mich.

Send us information on a lb. capacity, PT, Air Hoist

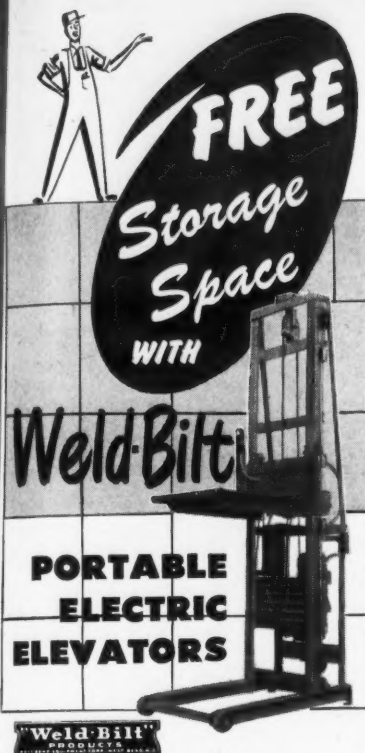
Company.....

Address.....

Name.....

When inquiring check CP 1684 on handy form, pgs. 2-3

CHEMICAL PROCESSING



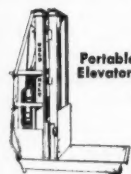
FREE
Storage Space
WITH
Weld-Bilt
PORTABLE ELECTRIC ELEVATORS

Weld-Bilt
PRODUCTS

Ceiling-High storage with a WELD-BILT Portable Elevator can double and triple your storage facilities, free valuable floor space for more productive use! That's one way a Weld-Bilt elevator can more than pay its way in your organization.

There's a Weld-Bilt Portable Electric Elevator to suit your needs exactly, in single, double telescopic or hinged types, in capacities from 500 to 4,000 lbs. They're easily moved, electric motor powered, easily controlled by convenient push button and automatic, top-and-bottom limit switches.

Get the whole story of profitable space-saving storage now from your nearby WELD-BILT engineer, or write for catalog and suggestions.



Portable Elevators



Pallet Trucks
Single Stroke
Lift Trucks



Two Wheel Trucks



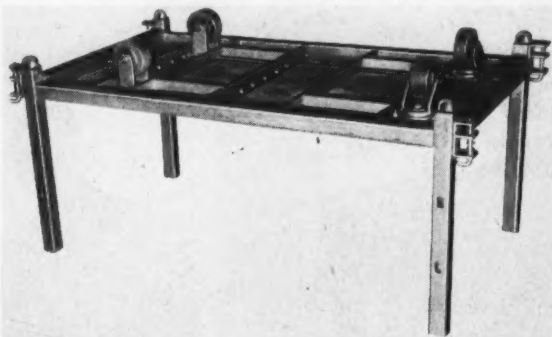
Platform Trucks

WEST BEND
EQUIPMENT CORPORATION
MATERIALS HANDLING ENGINEERS
319 Water Street, West Bend, Wis.

When inquiring check CP 1685 on handy form, pgs. 2-3

MATERIAL HANDLING

bling individual orders and then towed in trains to loading area. Here it is stacked to save floor space until carrier is ready to receive the shipment. Self-centering stacking caps simplify this phase of the operation.



Inverted view of dolly rack shows casters and the self-centering stacking caps on ends of risers

Source: Dolly rack is made by Equipment Manufacturing Inc., Dept. CP, 21550 Hoover Road, Detroit 5, Mich. . . or for more information check CP 1686 on handy form, pages 2 and 3.

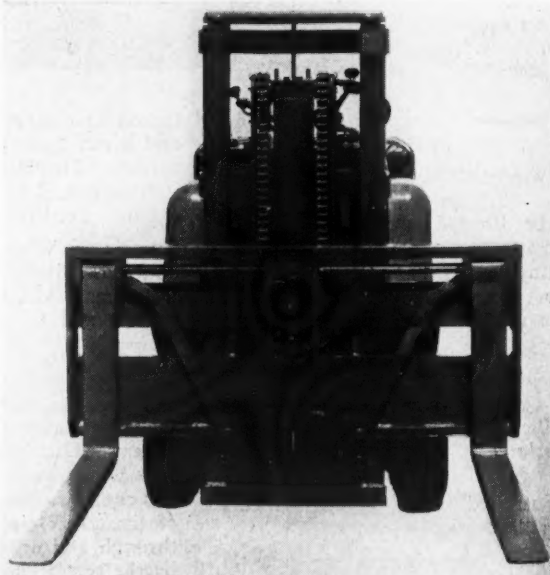
Operator adjusts fork widths with lever without leaving seat of truck . . .

change made while truck is in motion to speed handling of pallets, loads of varying widths

Uses: Device enables truck operator to quickly and accurately vary distance between two forks at any time.

Features: Operator can adjust forks from seat.

Description: Conveniently operated control lever adjusts forks to speed up handling of pallets and loads of



Fork widths adjust hydraulically from truck seat many different widths. Available with many of maker's trucks such as model illustrated.

Source: Towmotor Corp., Dept. CP, 1226 E. 152nd St., Cleveland, Ohio. . . or for more information check CP 1687 on handy form, pages 2 and 3.

THERE ARE 6 WAYS THAT DRACCO Pneumatic Conveyors SAVE MONEY. THIS INCLUDES LOWER LABOR COSTS

● DRACCO Pneumatic Conveyors make 6 distinct savings in handling chemicals, grains, or granular materials—in most installations LOWER LABOR COST is the important factor. The number of savings made depends upon the material handled and many other factors. Material handling is an every day expense that should be reduced to the MINIMUM. For over 35 years DRACCO Engineers have analyzed hundreds of plants and recommended cheaper and better ways of handling materials. Why not have them check your methods for possible savings—they will be able to find them.

DRACCO Pneumatic Conveyors SAVE MONEY

- 1 Reduce labor cost.
- 2 No loss of material in handling.
- 3 No contamination.
- 4 Eliminates dust.
- 5 Material received in bulk at lower cost.
- 6 Low maintenance cost.



Have
DRACCO
Check
YOUR PRESENT
METHODS FOR
POSSIBLE SAVINGS

For Further Information Write

DRACCO CORPORATION

4060 E. 116th St., Cleveland 5, Ohio New York Office: 130 W. 42nd St.

DUST CONTROL EQUIPMENT
PNEUMATIC CONVEYORS • METAL FABRICATION

When inquiring check CP 1688 on handy form, pgs. 2-3

Palmer Shile Materials HANDLING EQUIPMENT

CUSTOM BUILT TO MEET
YOUR NEEDS

Item
NS-288
\$5525



BARREL and BOX GRAB

For picking up any type of wood or steel barrel, box or container, from 40" diameter down to small nail keg size. Will lift up to 2000 lbs.



Item NS-298 \$4650

HAND DUMP TRUCK

Reinforced heavy sheet steel, $\frac{1}{2}$ cubic yard, capacity—two 8" semi-steel wheels and two 4" metal swivel casters. Wt. 125 lbs.

Automatic END DUMP

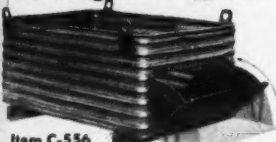
Built $\frac{1}{2}$ to $1\frac{1}{2}$ cu. yds. cap. Use with lift truck or can be furnished mounted on wheels.

Item S-878



Corrugated Steel STACKING BOX

with Hinged Door



Item C-556

One of the convenient uses of the box is on a steel stand. Door opens to any set angle by means of the chain, simplifying parts disposal by standing or sitting workmen. Built to dimensions and load capacity specified by the customer, including underneath clearance. Crane lugs, stacking brackets, and color of paint desired may also be specified.

UTILITIES RACK on wheels

Item NS-415M
(Roller bearing, 6' x 2', all metal wheels.)
\$6160

Item NS-415R
(Ball bearing, 8' x 1 $\frac{1}{2}$ ', rubber-tired wheels.)
\$6380



CARBOY TRUCK

Gripping Yoke loads automatically. Steel studs on truck grip the load—no slipping—all-steel, welded construction.

Item B-488M
Metal Wheels..... \$3800

When Ordering please give item number.
Prices subject to change without notice.



Item B-488R
Rubber tired
Wheels
\$4200

DESIGNED AND MANUFACTURED BY

Palmer Shile Co.

16016 FULLERTON AVENUE • DETROIT 27, MICH.

Throws Bulk Materials into Storage Piles at Rate of 50 Tons per Hour

Mobile unit adjusts to direct
stream over radius of 50' and
build piles to 20' heights

USES: For ground level storage of bulk materials, especially grain, chemicals, sand, coal and various small lump loads. Also used for aerating and re-piling grain.

Features: Stream of material can be directed while machine is running. Piler can handle up to 50 tons per hour, depending on material. Unit is easily moved and operated by one man. Requires little space since length is only 2' 9", width 3' 4", and height (to top of spout) 4' 1".

Description: Operates on same principle as maker's "Swiveloader", used for filling box cars and storage bins. Piler consists of a standard centrifugal thrower unit mounted on three rubber-tired wheels with roller bearings for easy mobility. Pivoted steering wheel is provided with tongue for pushing, pulling, or swiveling about the loading spout. Centrifugal thrower unit consists of a short, high-speed belt conveyor, in which the carrying surface of the belt is held in a concave curve by an idler disc on each edge of the belt. A vertical spout drops the material onto the curved belt between discs. In traveling the few inches around the curved path, (1) the material is pressed against the belt by centrifugal action, (2) quickly attains high speed of the belt, and (3) it is thrown from the belt as the belt returns.

Stream of material can be directed while running. Vertically, the angle of throw can be adjusted from 8 to 40° by means of the operating lever on the thrower. This gives a piling height of 10 to 25'. For directing the stream horizontally, the rubber-tired steering wheel is



Bulk material piler operated
by one man

locked in cross-wise position. This anchors the piler and it can be swiveled to direct the stream of material thrown. Drive is from 5 hp, enclosed fan-cooled 3600 rpm motor. Units can also be furnished with gasoline engine. Feed may be any type of conveyor.

Source: Wheel-mounted swivel piler is built by Stephens-Adamson Mfg. Co., Dept. CP, Aurora, Ill. ... or for more information check CP 1690 on handy form, pages 2 and 3.

Trailer-shipped products protected by independent gasoline heaters...

thermostatically controlled units guard shipments
in transit and during layovers

Gasoline burning automatic cargo heaters are now in service on highway trailers to protect perishable goods in transit. They operate independently of vehicle engine — on the road, at the dock, during layovers — providing full heat delivery under thermostatic control at all times. Unfailing operation and utmost safety are assured by constant ignition and sealed-in-steel combustion, with all gases being exhausted to the outside.

A typical heater, Model UH65, is a complete heating system. This "package unit" includes a 5-gallon fuel tank with gauge, battery charger, thermostat, and electric controls. In operation, it draws air from the floor of the trailer and recirculates it at required temperature through and around the cargo. Its battery is charged by the tractor generator while on the road and can be charged overnight during layovers by plugging built-in charger into any 110 volt outlet.

Without connection to the tractor, it will preheat the trailer at the dock and will maintain desired temperatures before unloading, or during overnight layovers or emergencies. Weighing 175 lb without battery or fuel,

CHEMICAL PROCESSING

erial
dling

it has a capacity of 25,000 Btu per hour and 150 cfm air delivery, and is available for 6 to 12 volt current. Fuel consumption averages less than one quart per hour, depending on outside temperature, insulation, and tightness of body.

Another model, UH62, has same capacity as one already described but is powered from tractor battery. It can also be mounted inside or outside.

A third model embodies heater only, has capacity of 25,000 Btu's per hour with 150 cfm air delivery. (Hunter Mfg. Co., 1550 East 17th St., Cleveland 14, Ohio.)

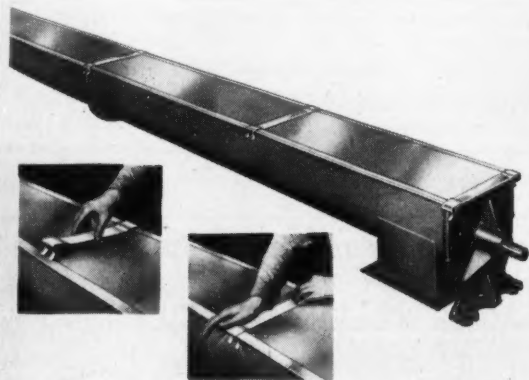
Clamps replace nuts and bolts in screw conveyor box covering system . . .

clamps snap on to hold U-edged covers in a tight fit on any conveyor box

Uses: Covering system for screw conveyor boxes.

Features: Clamps hold U-edge covers down; eliminate nuts and bolts. Removal of covers is speeded.

Description: System consists of covers and clamps which are available to fit any conveyor boxes. No tools



Screw conveyor covering system, showing method of applying spring steel clamps

are needed for installation. Simply push on edging, and snap clamps into place every 5 feet. Clamps are of spring steel, hold their resiliency indefinitely.

Source: "Tite-Seal" system is made by Screw Conveyor Corporation, Dept. CP, Hammond, Ind. . . . or for more information check CP 1691 on handy form, pages 2 and 3.

Spec sheets aid in selecting proper size of battery

Series of 6 specification sheets are designed to aid in the selection of the correct motive power batteries for industrial trucks, mine locomotives, and shuttle cars. All batteries are rubber jar type with either 6 or 8 hour discharge rate. Each specification sheet includes a cut-away illustration showing battery components. Also shown are a series of capacity curves. Specification data includes information on plates, separators, retainers, jars, cell covers, and vent plugs. Plugs are transparent, need not be removed for water level check-ups. Battery dimensions, ampere hour capacity, and kilowatt hour capacity at both discharge rates are given.

Specification sheets are issued by Gould Storage Battery Corporation, Dept. CP, Trenton 7, N. J. When inquiring specify CP 1692 on handy form, pages 2 and 3.

NOVEMBER, 1950



Extra help on toughest Mass Handling jobs.

Extra man-hours saved. Extra fast moving, loading, stacking, transporting. Extra profit for you!



It will cost you nothing extra to learn how Towmotor Mass Handling makes every materials handling job easier, faster, safer. For complete information, write for your copy of "Handling Materials Illustrated." Towmotor Corporation, Division 23, 1226 E. 152nd St., Cleveland 10, Ohio. Representatives in all Principal Cities in U. S. and Canada.



**FORK LIFT TRUCKS
and TRACTORS**

RECEIVING • PROCESSING • STORAGE • DISTRIBUTION

When inquiring check CP 1693 on handy form, pgs. 2-3



Arrange now for a private showing of this 30-minute sound movie on Materials Handling. See how Towmotor effects startling reductions in production costs. Ask for complete details at no obligation.

**SAVE
MONEY**
in your
plant



with this lightweight, aluminum-alloy
**Handy-Handler
CONVEYOR**



- Aircraft-quality aluminum-alloy construction • 14-gauge aluminum trough actually thicker than 16-gauge steel • Rubber belt with rubber flights or No. 45 steel link chain with plow-contour rubber flights • Deep flared sides, 6 1/4" trough • Replaceable trough assembly • Standard 16-ft. length increases with 4-ft. midsection. • Easily removable motor mount and detachable hopper sides.

FOR ODD JOBS
or the
PRODUCTION LINE
Regardless of the
size of your plant
you'll find a spot
where this one-
man conveyor can
save you all kinds
of time and money.



Unloading box
cars or hopper
cars.



Portable conveyor line.



Feeding material
to conveyor line.
Loading trucks and
other equipment.

The standard 16-ft. length weighs only 92 lbs. with quick-detachable power unit removed; approximately 150 lbs. with 3/4-HP electric motor.

Investigate possibilities in your plant today.
Write for price schedule and free literature.



THE BELT CORPORATION

7404 STAHL ROAD

ORIENT, OHIO

PATENTS PENDING

When inquiring check CP 1694 on handy form, pgs. 2-3

MATERIAL HANDLING

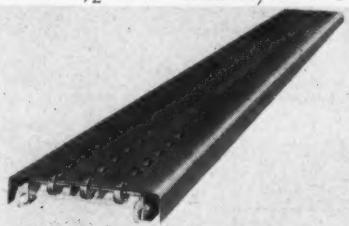
**Wheel-conveyor frame and axles
covered by aluminum shield . . .**

smooth exterior of sanitary covering is easily cleaned; aluminum wheels project through slots

Uses: For rapid, sanitary handling of trays and boxes containing materials in process.

Features: A 14-gauge aluminum shield covers frame and axle assembly. Its smooth exterior surface is easily kept sanitary and attractive. Shield is slotted to allow conveyor wheels to project. Wheels are 2" diameter, aluminum, baffled cone construction, ball bearing, lifetime grease packed.

Description: Conveyors sections are made in 5 and 10' lengths. Frames are 2 1/2 x 1" channel of 61-ST aluminum, with wide aluminum cross members. Construction involves no welding. Wheels are placed on 3" centers. Axles are cadmium plated, with hug-lock nuts used in both wheels and



Shielded gravity wheel conveyor

aluminum cross members, forming rigid knit construction. Shield is bolted to top flange of conveyor channel. Body heads are plated and countersunk. Conveyor may be supported on 12" wide Q stands, or the conveyor sections may be ordered punched for APB stands. Weight of sections: 5' — 28 lb; 10' — 56 lb.

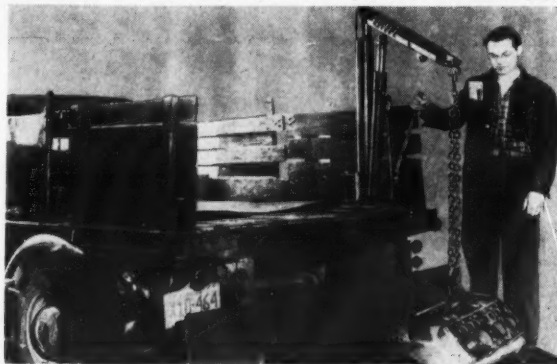
Source: Shielded aluminum wheel conveyor is built by The Rapids-Standard Co., Inc., Dept. CP, 342 Rapistan Bldg., Grand Rapids, Mich. . . or for more information check CP 1695 on handy form, pages 2 and 3.

**Hoist mounts on trucks,
shop floor frames,
work benches . . .**

hydraulically powered, hand-operated; lifts 3/4 ton

Uses: Hand-operated hydraulically powered truck or shop hoist will lift a 3/4-ton load 77 1/2" high in 45 seconds, and with a short hook-up a 1-ton load can be lifted 52" high in 45 seconds.

Features: Can be used on a 3-wheel tubular steel



Truck-mounted 3/4-ton hydraulic hoist

floor frame, or can be quickly converted for use on truck beds, work benches, and loading docks.

Description: When hoist is truck mounted, the 45" boom will swing in a full circle. Overall height of hoist

NEW ELWELL-PARKER
Fork Truck

Model F-30T
4000 lbs. Capacity
48" Load



GREATER LIFT—Total lift 130"; initial lift 66".

FASTER LIFT—25 f.p.m. with full load; 42 f.p.m. without load.

AMPLE TILTING ANGLE—5° forward, 12° backward for greater load stability turning corners.

LOW HYDRAULIC PRESSURE—1000 p.s.i.—less chance of leakage.

CUSHION TIRES—Smooth rides, sure traction, no punctures.

EASY TO OPERATE—Automotive controls. Entry or exit from either side. Good vision. Hydraulic brakes.

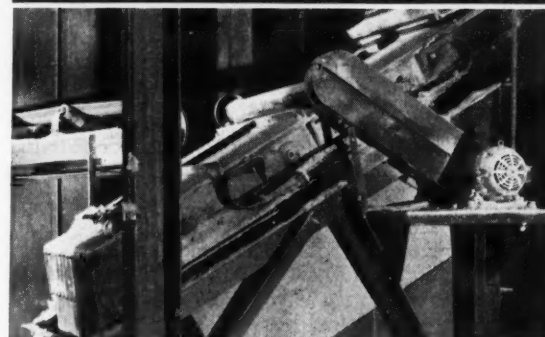
CLASS B ELECTRIC MOTOR—E-P built—practically indestructible and fireproof.

Send for Illustrated Bulletin

THE ELWELL-PARKER ELECTRIC COMPANY
4019 St. Clair Ave. Cleveland 3, Ohio

When inquiring check CP 1696 on handy form, pgs. 2-3

**Fertilizer volume kept high
by LINK-BELT Vibrating Screen**



This fertilizer plant, as well as fertilizer and chemical processing plants throughout the world, relies on Link-Belt Vibrating Screens to keep its production flowing at peak level at all times. Famous Link-Belt engineering features assure top screening efficiency, bottom operating costs and long life service.

Why not investigate today?

**ASK FOR
BOOK
No. 1762-A**

LINK-BELT COMPANY

Chicago 9, Indianapolis 6, Philadelphia 40, Atlanta, Houston 1, Minneapolis 5, San Francisco 24, Los Angeles 33, Seattle 4, Toronto 8, Johannesburg. Offices in Principal Cities.

LINK-BELT Vibrating SCREENS

When inquiring check CP 1697 on handy form, pgs. 2-3

MATERIAL HANDLING

is low enough to permit trucks to enter most doorways without bumping overhead. Mounted on a shop floor frame, a special locating pin locks hoist in safe working position.

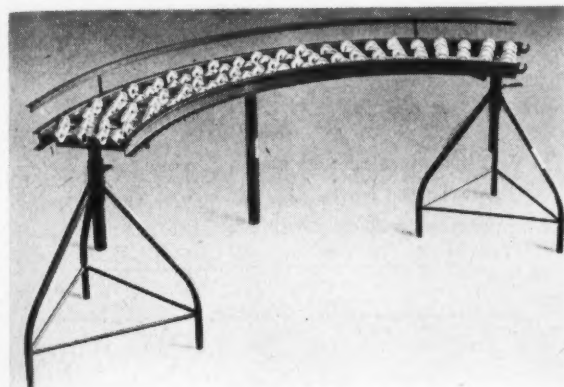
Source: Product of the Unit Manufacturing Company, Dept. CP, 1229 Harmon Place, Minneapolis, Minn. . . or for more information check CP 1698 on handy form, pages 2 and 3.

Either end of conveyor curve hooks to straight sections for right or left turns . . .

gravity-type wheel conveyor curves offered in 45 and 90° styles for wheel or roller conveyors

Uses: Both 45 and 90° gravity wheel conveyor curves are for use in conjunction with straight sections of either gravity-type wheel or roller conveyors.

Features: Curves have combination stud and hook couplings on both ends, making it possible to attach



Either end of conveyor curve attaches to straight conveyor section to form right or left turn

them for either right or left turns regardless of the coupling on the end of the straight section.

Description: Arrangement of 16 wheels per foot adapts curves for use with any wheel arrangement on straight sections, manufacturer reports.

Source: Product of the Sage Equipment Company, Dept. CP, 30 Essex St., Buffalo 13, N. Y. . . or for more information check CP 1699 on handy form, pages 2 and 3.

Steady discharge from bins assured by rotating unit

Described in 4-page bulletin, circular bin dischargers are for installation in bin throat. They handle pulverized, granular, glutenous, and soft lump materials that may pack or arch and refuse to discharge by gravity, or that may aerate and surge through opening too rapidly.

Two types are available, one with flight fingers above bin bottom, the other with flights above and below bin bottom. These flights carry material to discharge openings and, in the case of the 2-stage unit, give a measured flow. A hood over discharge opening of single-stage unit will also give controlled volume of flow. Either unit may be equipped with a rotating arch breaker.

Bulletin 250 is issued by Stephens-Adamson Mfg. Co., Dept. CP., Aurora, Ill. When inquiring specify CP 1700 on handy form, pages 2 and 3.

NOVEMBER, 1950

Your Cost-Cutting Way to **SPEED PRODUCTION** **SHIP MORE GOODS FASTER** Is In This 8-Question Check Chart

ANSWERING "YES" TO THESE
QUESTIONS HAS SAVED
INDUSTRY MILLIONS THE
AUTOMATIC ELECTRIC
TRUCK WAY!



1. Do you know how many of your workers are engaged in manual lifting, moving and stacking of materials?
2. Have you eliminated skilled workers from wasting time hand-moving materials in production?
3. Do you know exactly, or even approximately, what percentage of your product cost represents material handling cost?
4. Can just one man lift and move tons and tons of material with easy, finger-tip-control of electric push button, as is the case with Automatic Electric Transporters?
5. In storage areas, are you using empty but usable space overhead, stacking your products ceiling high, as can be done by one man operating a Transtacker or Automatic Skylift Electric Truck?
6. Do you know how many tons of material you move into, through and out of your plant daily?
7. Have you done anything to relieve labor and skilled workers' fatigue and loss of time, caused by back-breaking hand-lifting, bending and hand-truck-moving of material through your plant?
8. Do you know how much hand-handling of materials is costing you in (1) material and product damage, (2) needless accidents, (3) tired, low morale workers, and (4) production inefficiency?

CHECK
YES NO

<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
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<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>

THE SCORE TELLS IF YOUR PRODUCTION IS TOO SLOW, DELIVERIES BEHIND, COSTS TOO HIGH!—

<input type="checkbox"/>	<input type="checkbox"/>
--------------------------	--------------------------

This check chart of 8 important material handling questions has become famous in industry. Business men, by the thousands, found that "NO" answers to more than 4 of these questions meant there were "hidden handling costs" eating into their profits.

But when they could answer "YES" to the above questions, by applying the remedy of Automatic Electric Trucks, costs were cut 50% to 75%.

Today these trucks are paying an extra bonus in meeting today's stepped-up demand! They speed produc-

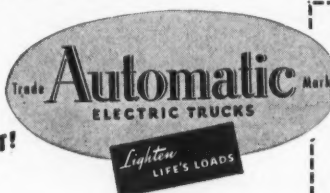
tion, get rid of costly bottlenecks, delayed deliveries... help you to ship more goods faster!

They move tons and tons of your product with easy finger-tip control. They stack as well as lift and move your material . . . save you costly man-hours, pay for themselves in as little as months. Let us show you the cost-cutting way they can speed up the flow of goods in your plant, to meet today's accelerated demand! Mail coupon.



Send now for this free booklet: "How to Make Your Material Handling Pay Dividends."

SEND
COUPON FOR
FREE BOOKLET!



Trade Automatic Mark

41 West 87th Street
Dept. W-3, Chicago 20, Ill.

Please send me facts on how to SPEED PRODUCTION and SHIP MORE GOODS FASTER with Automatic Electric Trucks . . . also free booklet: "How to Make Your Material Handling Pay Dividends."

Company Name.....

By.....

Street Address.....

City.....Zone.....State.....

When inquiring check CP 1701 on handy form, pgs. 2-3

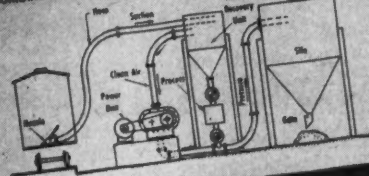
**Save
TIME
and LABOR
•
LOWER
YOUR
COSTS ...
with this
BEAUMONT
PNEUMATIC
CONVEYOR**

● This Beaumont Pneumatic Conveyor System is tailored to the requirements of the process industries. With it, you can move ores and fine, crushed or granular chemicals anywhere a pipe can be run. It's efficient in operation—saves time and labor and reduces handling costs.

The Beaumont Conveyor can be supplied to utilize suction or pressure or a combination of both, as illustrated. Sizes are available for capacities from 1 to 100 tons per hour.

Since the job and material to be conveyed determine the general design of the system—your best bet is to acquaint us with your particular problem and let us quote on the most efficient type and size to serve your needs.

Combination—Empties by Suction—Delivers by Pressure



BEAUMONT BIRCH COMPANY

1516 RACE STREET • PHILADELPHIA 2, PA.

Designers Manufacturers Erectors

When inquiring check CP 1702 on handy form, pgs. 2-3

**3 specific
handling problems
solved at
OTIS TERMINAL
WAREHOUSE
WITH BAKER
FORK TRUCKS**



This large Cleveland warehouse handles about 17,600,000 lbs. of merchandise per month. Approximately 25% of this tonnage is handled by two Baker FQ (light-weight, low-cost) Fork Trucks—used for unloading, storing and loading—solving three specific handling problems:

1. Smooth operation has materially reduced breakage of fragile merchandise.
2. Electric power has made mechanized handling possible in certain confined areas.
3. Maintenance costs and down time of handling equipment have been substantially reduced.

Efficient use of Fork Trucks has kept operating costs in line. High tiering achieves maximum capacity from storage areas.

Learn how Baker Trucks can solve similar handling problems in your plant or warehouse.

BAKER INDUSTRIAL TRUCK DIVISION
of The Baker-Raulang Company
1208 WEST 80th STREET • CLEVELAND 2, OHIO

Baker INDUSTRIAL TRUCKS

When inquiring check CP 1703 on handy form, pgs. 2-3

MATERIAL HANDLING

**Should cable break,
safety device holds
elevator's load . . .**

now incorporated as optional feature on 1/4, 1/2, and 1-ton hand-operated, mobile models

Uses: Mobile hand-operated elevators for lifting, lowering, and general

positioning — 500, 1000, and 2000-pound capacity models.

Features: Elevators are equipped with a cable safety device — a vertical saw-toothed member between the uprights. Provides places of engagement for a safety pawl mounted on the traveling platform, preventing the platform and its load from dropping in case the cable should break.

Description: Cable safety device, complying with State regulations, has been added as optional equipment to maker's

Mobile elevator equipped with added safety features

"Hundred Line" of mobile elevators. Other safety features include arc-welded construction of structural members, cable guards for sheaves to prevent cable from slipping off, and a floor lock to assure stability in loading and unloading operations.

Source: Barrett-Cravens Co., Dept. CP, 4609 S. Western Blvd., Chicago 9, Ill., is the maker. . . or for more information check CP 1704 on handy form, pages 2 and 3.

**Boxes, cartons moved, raised
by channel frame conveyors . . .**

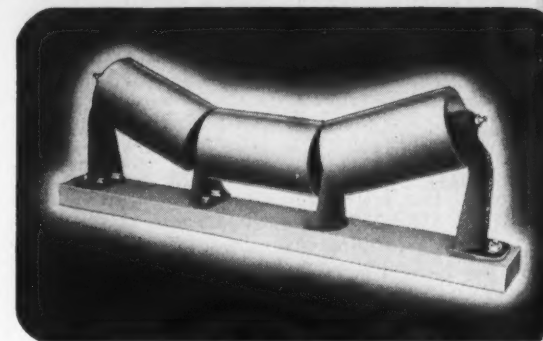
units in standard lengths may be used singly or operated in tandem; handle boxes to 500 lb

Uses: For handling bags, boxes, bundles, cases and cartons, and similar unit loads weighing up to 500 lb.

Features: Pushbutton controls for starting, stopping, and reversing may be located according to requirements. Bearings are bronze bushed. Belt is supported by closely spaced heavy steel rollers, or hardwood sliderboards. Telescoping feed end with toggle belt take-up adjusts at one point. Rubber lagging on pulleys is 1/4" tire tread rubber, easily replaceable without removing pulley from conveyor.

Description: Available in caster and pneumatic wheel mounted models. Illustration shows unit mounted on swiveling casters. Standard widths are 14, 18, 24, and 30"; standard lengths, 15 to 50'. These various models handle an average of 30 boxes or cases per minute.

Frame is made of 2 x 1 1/2 x 3/16" angles sturdily braced to assure rigidity. Head pulley is 8" in diameter, lagged



**Only Robins Idlers . . .
give you these advantages**

1. **One-Shot Lubrication.** Requires only *half* the time to lubricate . . . only *one* walkway on your conveyor!
2. **Triple-Grease Seal.** Seals grease in—locks dirt out. Patented . . . exclusive . . . effective!
3. **Rigid Truss Construction.** Entire end bracket, center bracket and pulleys form a single unified member—stronger than any other type of construction!

Made in troughing and return types, roller or ball bearing. Prompt delivery. Write for bulletin 120-A1.

ROBINS  IDLERS

ROBINS CONVEYORS DIVISION

Hewitt-Robins Incorporated

Passaic, New Jersey

When inquiring check CP 1705 on handy form, pgs. 2-3

**The
"TOTEMASTER"**

POWERED BY A 20 H.P., 4 CYLINDER GAS ENGINE

Indoors or out — this rugged ONE-TON Toter scoots around with loads up to capacity and at speeds up to 20 M.P.H.

- Crosley 4 cylinder engine — 20 HP. CI block — 5 main bearings.
- High compression engine — Ratio 7.8:1. More complete combustion means reduced fuel and less fumes.
- Electric starting. No cranking, therefore operator will stop engine while loading truck. Saves fuel and reduces fumes.
- 3 speeds forward — 1 reverse. Saves strain on engine. Increases grade performance with heavy loads. Lowers maintenance cost.
- Two wheel drive — differential. More effective traction. Less wear and tear.
- Water cooled engine — quiet and cooler.
- Hydraulic brakes — airplane type.
- Double handle grip provides one or two hand steering.
- When operator leaves seat, parking brake is mechanically applied.

21 Sq. Ft. of Loading Space, Draw Bar Pull: 1200 lbs.
WRITE FOR "TOTEMASTER" Bulletin #30

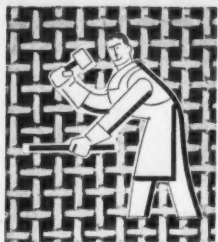
LEWIS-SHEPARD
PRODUCTS INC.

146 WALNUT STREET, WATERTOWN 72, MASS.
Midwest Plant: CRAWFORDSVILLE, INDIANA

REPRESENTATIVES
IN PRINCIPAL CITIES

When inquiring check CP 1706 on handy form, pgs. 2-3

CHEMICAL PROCESSING



At your Service

ON WIRE AND METAL ASSEMBLIES

Cambridge offers the most modern fabricating facilities plus years of engineering experience...

... to make any wire and sheet metal tray, rack, basket, fixture, crate, screen or other fabrication you need to reduce costs and speed-up material handling processing and treating. The fact that Cambridge is equipped to perform every step of the designing and manufacturing assures you of the famous Cambridge quality and service on all items.



Your Cambridge field engineer can recommend the right design and construction for washing, spraying, dipping and similar operations.

Or write direct for information on the complete Cambridge facilities. Send for this FREE illustrated folder describing Cambridge wire baskets and specialties.



Cambridge Wire Cloth Co.
Dept. F • Cambridge II, Md.

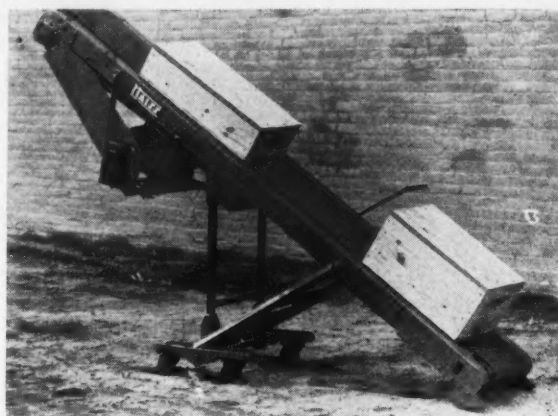
Wire cloth in rolls. Any metal or alloy, mesh or weave.

OFFICES IN PRINCIPAL INDUSTRIAL CITIES
See "Baskets, Wire" in Your Classified Telephone Directory

When inquiring check CP 1707 on handy form, pgs. 2-3

NOVEMBER, 1950

MATERIAL HANDLING



Handles boxes, crates at rate of 30 per minute to prevent belt slippage under heavy load. Belting is 28 oz duck, 4 ply, with 2500 to 3000 lb tensile strength; 1/16" top and bottom covers. Cushion edges. Close width tolerances. Can be fitted with guide lugs running in hardwood grooves.

Source: Model 485 package conveyors are built by George Haiss Mfg. Co., Inc. (Div. Pettibone Mulliken Corp.), Dept. CP, 141st to 144th St., Park Ave., New York 51, N. Y. . . . or for more information check CP 1708 on handy form, pages 2 and 3.

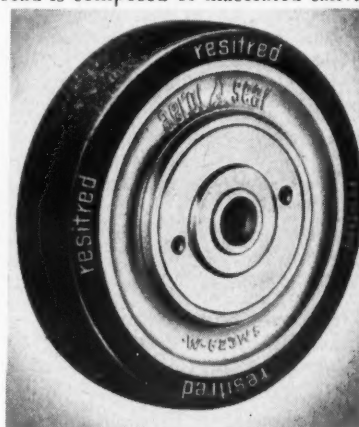
Impregnate canvas material with resin; form it into tread for truck wheels . . .

permanently bonded to aluminum alloy hub for non-sparking, high-load service

Uses: For service on industrial vehicles where resistance to acids, greases and common fats is a factor, and where high loads must be handled.

Features: Materials used in construction prevent corrosion and deterioration. Easy rolling, quiet operation. Combination of spark free quality of tread and aluminum alloy wheel assures safe operation in hazardous areas.

Description: Tread is composed of macerated canvas duck material, impregnated with phenolic resin and formed under pressure in precision molds to achieve concentricity and balance. Permanently bonded to an aluminum alloy hub, tread will withstand unusually high loads. Tread is available on three series of maker's industrial wheels.



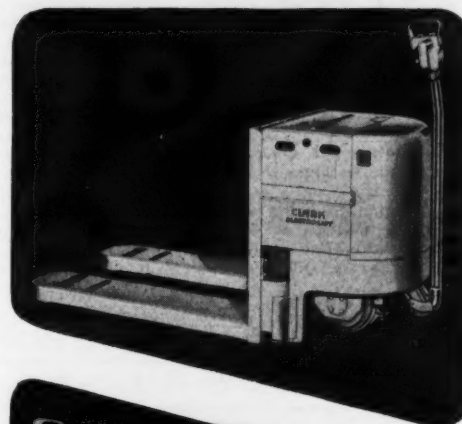
Resin impregnated tread resists acids and greases

Source: Wheels with "Resitred" are made by Aerol Co., Inc., Dept. CP, 2820 Ontario St., Burbank, Calif. . . . or for more information check CP 1709 on handy form, pages 2 and 3.

Biggest Materials Handling news in years

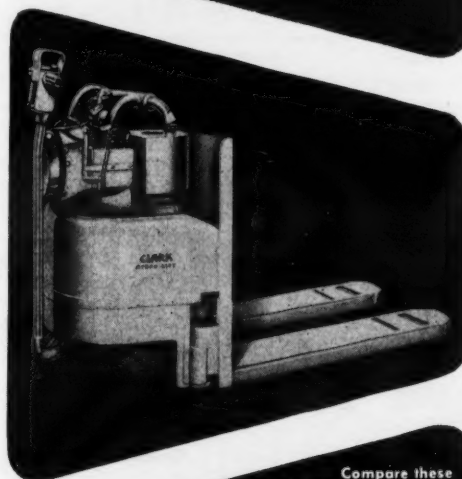
CLARK'S REVOLUTIONARY *New* POWERED HAND TRUCKS

• GAS OR ELECTRIC POWER • SHORTEST TURNING RADIUS •
MORE POWER! • MOTORS IN THE DRIVE WHEEL



1 Electro-Lift

New-type compound motor develops more power than any other electric truck. Ample reserve power—high gradability. Automatic acceleration. Soft, dynamic braking. Requires minimum operator effort because speed variations are negligible. 19-plate batteries.



2 Hydro-Lift

Gas-engine drives variable-displacement hydraulic pump which drives constant-displacement hydraulic motor with unequalled smoothness and controllability. 24-hour ramp service. Automatic torque multiplication—big reserve power. Effortless finger-clip positioning of directional controls.

One Basic Design

Same rugged frame for both power types. Shortest wheelbase. Larger (14") drive tire carries greater share of load—lessens weight on rollers—less wear on rubber and floor. Greatest underclearance. Compact drive unit—fully enclosed. Largest main carrier bearing of all hand trucks.

Compare these great new machines with all others—as to what you get for your money! To get all the facts, send for our

hand-truck booklet—yours for the asking. Use the coupon.

CLARK ELECTRIC AND GAS POWERED FORK TRUCKS AND POWERED HAND TRUCKS • INDUSTRIAL TOWING TRACTORS



INDUSTRIAL TRUCK DIVISION • CLARK EQUIPMENT COMPANY • BATTLE CREEK 9, MICH
Please send New Powered Hand Truck Book.

Name _____
Firm Name _____
Street _____
City _____ Zone _____ State _____

AUTHORIZED CLARK INDUSTRIAL TRUCK PARTS AND SERVICE STATIONS IN STRATEGIC LOCATIONS

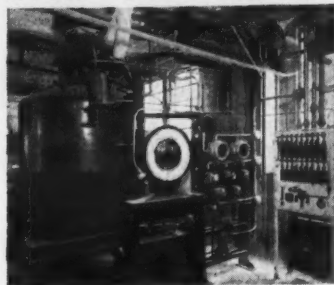
When inquiring check CP 1710 on handy form, pgs. 2-3

ROBINSON *Air-Activated* CONVEYOR

**Why It Moves
Dry Pulverized
or Fine Granular
Materials at
Low Cost**

• Fluffs up Materials into
a Dense, Fluent Air-
Solids Mixture... No
Slugging Through

• Requires no Motor
Driven Parts to Charge
or Discharge



Robinson Air-Activated Conveyor System
with Automatic Controls and Weighing

In the Robinson System, materials are fed by gravity into the Activator (shown above). Moisture-free air is admitted, causing the material to fluff up into a dense mixture of solids and air and thus become fluent. The charge almost immediately begins to flow to its destination. When the Activator is empty, the cycle is repeated. In one plant handling cement it takes about 1 minute to fill and 3 minutes to discharge an Activator of 80 cu. ft. capacity.

If you are processing or producing dry pulverized or fine granular materials, consider handling it into, through or from your plant pneumatically. The Robinson System has much to offer. In writing for Bulletin 312, give details of your problem.

A Division of
MORSE ROULGER DESTRUCTOR CO

ROBINSON

Air-Activated

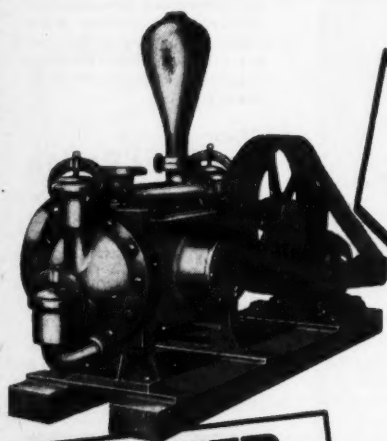
CONVEYOR SYSTEMS

Representatives in Principal Cities

211-V EAST 42nd STREET • NEW YORK 17, N. Y.

Represented in England by Blaw-Knox, Ltd., London
Represented in the French Union and Benelux by
Cie Francaise Blaw-Knox, Paris

When inquiring check CP 1711 on handy form, pgs. 2-3



**SHRIVER
DIAPHRAGM
PUMP**

• No Stuffing Box
• No Leakage
• No Wear on
Working Parts

**FOR THOSE
HARD-TO-PUMP
MATERIALS**

**Use the Pump
that**

- ✓ Costs Less to Operate
- ✓ Is Easier to Maintain
- ✓ Lasts Longer

Pays for itself on materials that cause excessive wear, maintenance and replacement with ordinary pumps. Cuts operating costs and trouble. Positive acting — always lubricated — no packings — easy to clean — plenty of pressure, suction and capacity — built of any metal or rubber covered. Get this Bulletin 126.



T. SHRIVER & COMPANY, Inc.
846 Hamilton Street Harrison, N. J.

When inquiring check CP 1712 on handy form, pgs. 2-3

MATERIAL HANDLING

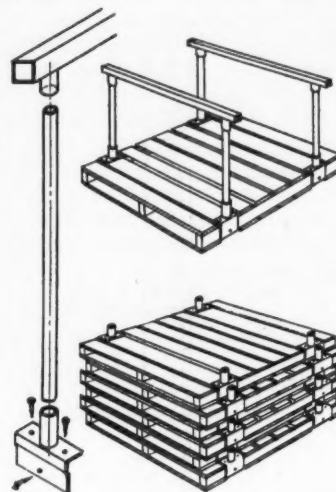
**A few simple parts
adapt pallets for
tiering . . .**

system of sockets and posts is easily installed or removed

Uses: System for converting any standard 3-stringer wood pallets for tiering.

Features: System is quickly and easily assembled or disassembled.

Description: System consists basically of a pair of tiering horses which are mounted on pallets. Four socket assemblies are permanently secured to pallet corners, posts are



Component parts, complete assembly, and stacking method for pallets with conversion system

slipped into them, and cross bars fitted to tops of posts.

Three different strengths of posts are available in all lengths for light, medium, or heavy loads. Pallets with attached socket assemblies are easily piled on each other, and component parts take only a minimum of space.

Source: Palteam system is made by The Paltier Corporation, Dept. CP, 53 W. Jackson Blvd., Chicago 4, Ill. . . . or for more information check CP 1713 on handy form, pages 2 and 3.

**Operate hopper devices
from floor level with
sprocket rim . . .**

no chain slippage; positive control at all times

Uses: Designed for operation of overhead or inaccessible valves and hopper devices from the floor.

Features: Eliminates necessity of such dangerous practices as climbing

Let "SCREW CONVEYOR"

Supply ALL your Conveying Needs



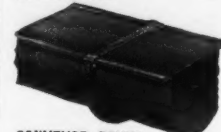
HELICOID CONVEYOR

Made in all standard sizes. Also in special diameters and gauges of flight.



SECTIONAL FLIGHT

Self-supporting flights with uniform pitch and diameter in all sizes. Also ribbon, cut-flight, etc., with or without paddles.



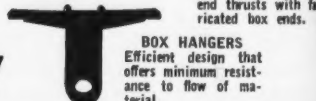
CONVEYOR BOXES
With exclusive Hammond "U" edging and cover clamps.



FAMOUS NU-HY BUCKET
Delivers highest possible capacities of grain and granular materials.



END THRUSTS
Largest line of ball and roller bearing end thrusts with fabricated box ends.



BOX HANGERS
Efficient design that offers minimum resistance to flow of material.

**... YOUR ASSURANCE
OF THE FINEST!**

Write
for cat.
No. 749



When inquiring check CP 1714 on handy form, pgs. 2-3

FLUID DRIVE *Lifting* TRUCK
smooths out handling kinks and costs

130-inch lift 66-inch free lift



Smooth Fluid Drive makes ramp climbing a cinch. Automatic controls. Drives like your car! Powerful 65 H.P. motor. Duplex hydraulic hoisting unit for smooth lifting, lowering. Hypoid drive power axle takes bumps in stride. Has safety-first automotive-action hydraulic brakes, ground gripper tires. Capacities to 10,000 lbs. Write for literature.

KO-2



THE YALE & TOWNE MANUFACTURING CO.

Roosevelt Boulevard • Philadelphia 15, Pa.

HAND LIFT AND POWER TRUCKS • HAND AND ELECTRIC HOISTS • INDUSTRIAL DIAL SCALES

When inquiring check CP 1715 on handy form, pgs. 2-3

CHEMICAL PROCESSING



Molded On
Rubber Tired
Wheels



Pneumatic & Semi-
Pneumatic Casters



Swivel Casters



Stem Plate
Casters



Cone Stem
Swivel Casters



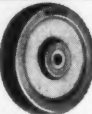
Semi-Steel
Wheels



Extra Heavy
Duty Wheels



"Resonite"
Wheels



Solid Rubber
Wheels



Pneumatic and
Cushion Wheels

THOMAS TRUCK & CASTER CO.

115 MISSISSIPPI RIVER • KEOKUK, IOWA

MATERIAL HANDLING

ladders or boilers for the operation of valve wheels. It also eliminates need for building special galleries, runways, or catwalks.

Device also permits placing new valve installations wherever they should be for convenience and economy, regardless of location.

Description: Easily and securely attached in a few minutes. A specially designed chain fits over the individual sprockets of the rim, while the chain guide arm keeps the chain even and prevents its slipping off the sprocket rim.

Device comes in a range of 10 adjustable sizes to take care of all valve makes and types, and fits valve wheel diameters from 2 to 30 inches.

Source: Babbitt Steam Specialty Co., Dept. CP, New Bedford, Mass. . . . or for more information check CP 1718 on handy form, pages 2 and 3.

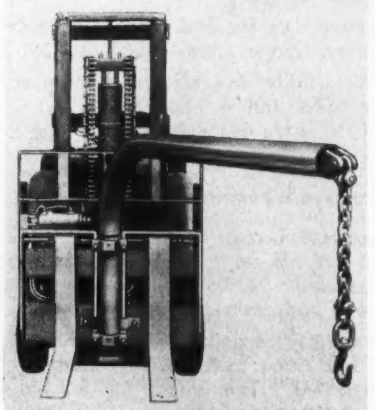
Hydraulic cylinder swings crane arm through 40 degrees . . .

arm supports 800-lb loads at 80" load center

Uses: Crane arm attachment for fork trucks; main application is positioning loads in freight cars.

Features: Hydraulic cylinder swings crane arm 20° laterally to either side of center.

Description: Arm supports loads of 800 lb at 80" load center. It is



Notice how crane arm attachment fits on fork truck

readily detachable so that truck can be used with standard forks.

Source: Crane arm attachment is made by Towmotor Corporation, Dept. CP, 1226 E. 152nd St., Cleveland 10, O. . . . or for more information check CP 1719 on handy form, pages 2 and 3.

There's profit in easy handling



...with Buschman Conveyors in all industries!

Eliminate the hidden handling costs of manual pushing, pulling, lifting of materials. Put your products on BUSCHMAN Conveyors — the magic carpets of industry — and you will move products faster, and at greater profit. Write for descriptive bulletin on how to give your products an easy PROFIT RIDE —

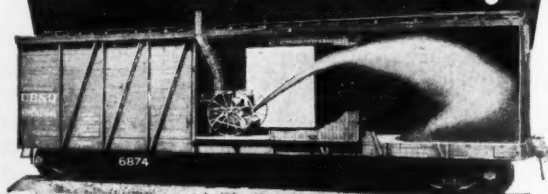
with BUSCHMAN. Agents in Principal cities.

Buschman Conveyors

THE E. W. BUSCHMAN CO., INC.
SPRING GROVE & CLIFTON
CINCINNATI 32, OHIO

When inquiring check CP 1720 on handy form, pgs. 2-3

CUT THE COST OF FILLING!

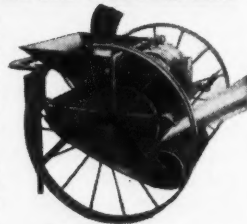


with an S-A BOX CAR LOADER

Load and trim box cars at a fraction of the cost of manual trimming . . . Save time and money!

One man, with part time attention to the S-A Loader, can handle up to 100 tons an hour—of any loose granular or small lump material up to 2" lump size.

Exposure of operator to dust is reduced to a minimum. Centrifugal action whirls material in a directed stream to any spot in the car.



Write for Bulletin No. 240 with complete details.

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TELLEVE—Bin Level Controls
Car Loaders
Variable Speed Reducers

MFG. CO.
Car Pullers

SealMaster Ball Bearings
Winches
Saco Speed Reducers

11 RIDGEWAY AVE., AURORA, ILL.

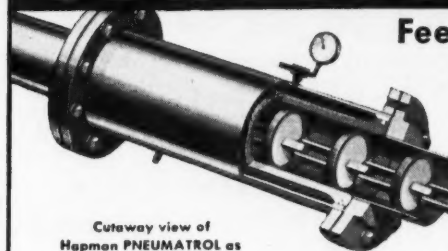
When inquiring check CP 1717 on handy form, pgs. 2-3

NOVEMBER, 1950

HAPMAN TUBULAR CHAIN OR CABLE CONVEYORS

FOR FLOWABLE MATERIALS

U.S. Pats. & Pats. Pend.



Cutaway view of Hapman PNEUMATROL as it is mounted on the Hapman Tubular Conveyor

Feeding or Processing CONTINUOUSLY UNDER Pressure or Vacuum REDUCES COSTS!

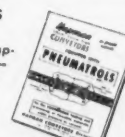
An inner sleeve of rubber or other material, depending on type and temperatures of materials handled, is mounted within the casing of the Hapman PNEUMATROL. By using two or more PNEUMATROLS with a Hapman Tubular Conveyor, the PNEUMATROLS act as seals or corks to retain pressures while permitting the continuous passage of the solid circular flights through them.

SALES OFFICES IN PRINCIPAL CITIES

HAPMAN PNEUMATROLS, used integrally with the Hapman Tubular Conveyor, now make possible the continuous feeding and/or processing of flowable materials into and out of pressure or vacuum zones. This development enables food and chemical products to be processed while being conveyed from one point to another, or you can handle products into and out of processing zones, eliminating time-consuming batch methods.

THIS FOLDER BELONGS IN YOUR FILES

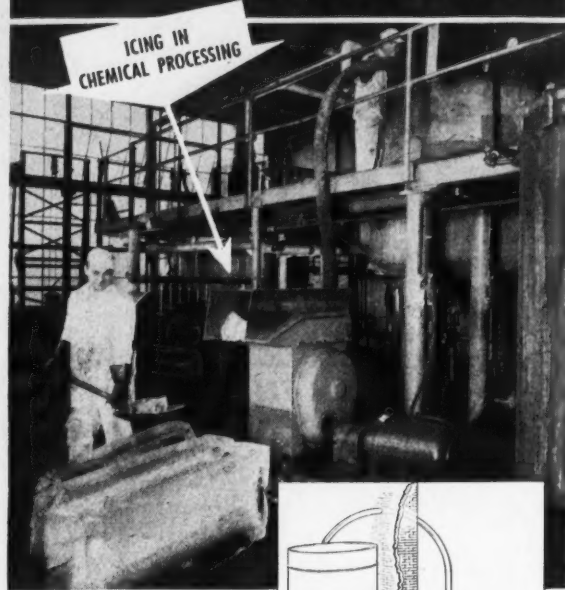
Complete details on Hapman PNEUMATROLS—typical layouts—dimension and capacity charts—are given. Your request will bring it to you promptly.



HAPMAN CONVEYORS, Inc. 630-B GIBSON ST.
Division HAPMAN-DUTTON COMPANY • KALAMAZOO 6, MICH

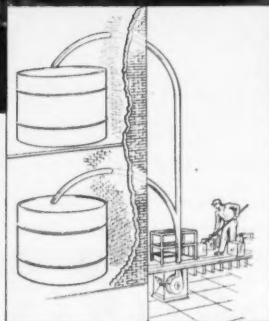
When inquiring check CP 1721 on handy form, pgs. 2-3

Simple, Efficient and Economical



Above: Link-Belt portable electric model 240 Ice Crusher-Slinger which blows snow-ice into vat for chilling and for crystal precipitation of organic compound.

Right: Diagram shows one method of using Ice Crusher-Slinger for blowing snow-ice into vats.



Here is your solution

Feed your ice to a Link-Belt Ice Crusher-Slinger where it is reduced to snow-ice and blown into the vats or other equipment. There is no further handling. This method saves time, reduces handling costs and gives a better control of the cooling and diffusion process.

Link-Belt Ice Crusher-Slingers are available with capacities of 15 to 60 tons of ice per hour and in a wide choice of styles and types to meet your conditions.

Send for Catalog No. 2261.

LINK-BELT COMPANY

Chicago 8, Indianapolis 6, Philadelphia 40, Atlanta, Houston 1, Minneapolis 5, San Francisco 24, Los Angeles 33, Seattle 4, Toronto 8, Johannesburg. Offices in Principal Cities.

LINK-BELT
ICE CRUSHER-SLINGERS

11,923

When inquiring check CP 1722 on handy form, pgs. 2-3

Briefs • • • from contemporary publications

Here's a quick look at interesting articles appearing in other publications, . . . as selected by Technical Editor, Harry McCormack

Disposal of synthetic organic wastes

Problems arising in the disposal of wastes from a plant making synthetic organic chemicals are discussed in 6-page report. Discusses drainage in the area of the plant.

Study was made to determine the most troublesome contaminants. Difficulties in attempting to evaluate these wastes as river pollutants are discussed. Methods for reducing volume of waste waters are considered.

Treatment of specific wastes to reduce B.O.D. is described. Merely a progress report, it includes no specific plan for handling all waste waters. Includes 3 tables, 8 figures and discussion. ("Chemical Engineering Progress", Aug., 1950, page 388)

Chemical treatment of infested seed

Some of the difficulties arising in testing the value of a chemical for treating infested seed is pointed out in 3-page article. Kinds of fungicides available are classified, and comments are made on methods of application. Certain members of the different classes are discussed. Illustrated with 2 photos. ("Agricultural Chemicals", Aug., 1950, page 27)

Treats lubrication with silicone greases

Advantages in using silicone greases for specific lubrication jobs in both the low and high temperature ranges are presented in 3-page article.

Summary of application data for four types is presented. Operating temperatures range from -100° to 300°F .

Some function satisfactorily in corrosive atmospheres. Article includes 3 tables and 4 photos. ("Plant Engineering", Aug., 1950, page 42)

Appraising returns from research

Replies received from members of Industrial Research Institute, as to their methods for evaluating research, are summarized and discussed. Methods range from general to specific, and lines of business represented are diverse.

Some figures are quoted as to dollar returns per research dollar expended. Evaluation methods, as confirmed by this study, are suggested. Two pages. ("Mechanical Engineering", Aug. 1950, page 645)

Details disposal of spent caustic

Five-page paper tells how the disposal of caustic solutions, used in petroleum refining, have been processed so they may be discharged to streams. Development of the process is related.

Compounds contained in spent caustic are tabulated before

and after neutralization, showing chemical changes due to treatment. "Tar acids" contained in spent caustic are separated and may be recovered. Schematic drawings show arrangement and relative size of component parts in treating unit. Illustrated with 3 figures and 5 tables. ("Petroleum Refiner", Aug., 1950, page 111)

Beet sugar process waters — treatment and utilization

Sources of various waste waters and their components are commented on in 8-page article, illustrated with 8 tables and 6 figures. Methods for treating which have been tried or recommended are discussed.

Experimental work was conducted, and a process thought to be both economical and effective was tried out at two beet processing plants. Major portion of paper presents data from these plants, and forms the basis of the recommended waste water treatment. ("Chemical Engineering Progress", Aug., 1950, page 380)

Ups production by piping raw materials

A 3-page article tells the story of increased operating efficiency realized by a varnish company when proper pumping and piping system was substituted for truck handling of raw materials. Seventeen accruing advantages are listed. Provision was made for heated storage and pumping of viscous materials. Four photos and 1 drawing. ("Heating, Piping and Air Conditioning", Aug., 1950, page 83)

Entrainment separation using wire mesh

An entrainment separator of knitted wire mesh is described in a 1-page article. The mesh has the advantage of providing large surface area with a high free volume. Can be used in fractionating columns, vacuum pipe stills, scrubbing towers, evaporators, etc. Fabrication and application are discussed. Efficiency is high, pressure-drop low. Illustrated with 2 figures. ("Petroleum Processing", July, 1950, page 719)

Plastic screw with metal core

Plastic screw described in 2-page article has a metal core. Can be produced in various sizes, and characteristics can be varied by changing plastic used. Non-corrosive characteristics suggest its use in certain chemical and food fields. Illustrated with 4 photos. ("Modern Plastics", Oct., 1950, page 80)

Freon-12 refrigerant vs. pipe sizing

Vital effects of pipe sizing and installation design in systems using this refrigerant are discussed in 6-page article. Proper lubrication is discussed.

Chart shows the effect of pressure drop on capacity. Nomo-

graph shows resistance of sweat and weld fittings to fluid flow. Four charts show different piping arrangements with multiple evaporators and compressor at different positions.

Tables give necessary data for engineering calculations under diverse operating conditions. Article includes 8 figures and 1 table. ("Refrigerating Engineering", Aug., 1950, page 753)

Maintenance and repair of control valves

Methods used in a petroleum refinery to maintain and repair control valves in the processing lines are discussed in 6-page article. Pertinent comments are made as to performance of a control valve.

Procedure from taking the valve out of processing line, up to its return to service is discussed. Kind of record kept on each valve is shown. Facilities necessary for the work are commented on, as well as various common troubles experienced with valves. Includes 12 photos and 2 tables. ("Petroleum Refiner", Aug., 1950, page 77)

Sonic agglomeration of carbon black aerosols

Application of a new method of aerosol agglomeration to the furnace carbon black process is discussed in 10-page article. Carbon black aerosols are described. Photomicrographs show various agglomerations. Various agglomerating methods are discussed. Apparatus necessary and technique required to produce sonic agglomeration are discussed and described. Includes 16 figures and discussion. ("Chemical Engineering Progress", Aug., 1950, page 423)

Importance of molybdenum in fertilizers

Review of investigations on the effects of minor quantities of molybdenum in the soil in which plants are grown, and some experimental results obtained are presented in 3-page article.

Function of molybdenum in promoting plant growth is discussed. Desired amounts which should be present to contribute to growth of various plants and the pH of the soil for satisfactory action in promoting growth are cited. ("Agricultural Chemicals", Aug., 1950, page 31)

Training program promotes professional responsibility

William Oncken, Jr., director of training, US Naval Ordnance Laboratory, White Oak, Silver Spring, Md., discusses a training plan operated under his direction. Trainees may enter from the Junior college year. Skills and attitudes deemed of particular importance are listed. Civic responsibilities of the group are outlined, and need for the individual to develop communication skills is emphasized. Training is described. Three pages. ("Mechanical Engineering", Aug. 1950, page 634)

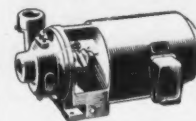
Catalyst level in cracking units measured by means of a radium compound and Gelger counter

The development and application of this method are described in 5-page article, illustrated with 7 figures. Necessary instrumentation is described. ("Petroleum Processing", Sept., 1950, page 941)

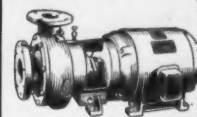
ALLIS-CHALMERS PACKAGE PUMPS



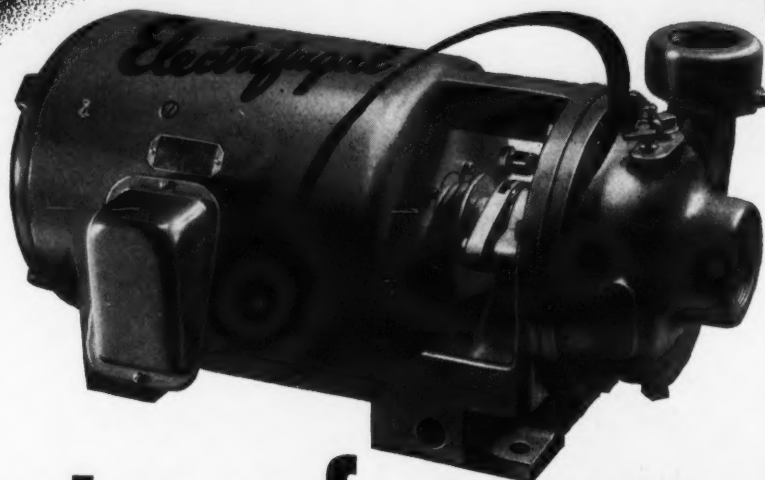
SSR Fractional hp.



Electrifugetal 1 to 10 hp.



SSU 10 to 125 hp.



Plenty of room for maintenance

LOOK AT THE SPACE between the pump and motor on this *Electrifugetal* pump. Packing maintenance or replacement is quick and easy, yet rigidity of the frame has not been sacrificed. You save time and money on maintenance. You get a better packing job because your maintenance man has room to work.

Maintenance procedures on bearings have been eliminated altogether. Bearings are sealed with just the right amount of the correct grease. They cannot be over or under lubricated. Bearings are protected from liquid by a new type of double bearing seal that excludes all liquid under any normal operating condition.

All cast iron frame construction for rigidity and corrosion resistance... smooth contours for pleasing appearance and easy

cleaning... replaceable wearing rings... shaft sleeves... are other high quality features that make A-C package pumps deliver low cost per gallon pumped.

COORDINATED DESIGN

Pumps and motors are designed, built, assembled and tested in the same plant to work together to give you more for your pump dollar. Competent application engineers help you select exactly the right pump for your needs and a nation-wide network of Certified Service Shops helps you keep your pumps in top condition.

Get details on the cost cutting A-C Package Pump for your application from your A-C Authorized Dealer or Sales Office. Or write for Bulletin 52B6140.

A-3062
ALLIS-CHALMERS, 1151A SO. 70 ST.
MILWAUKEE, WIS.

Sold...

Applied...

Serviced...

by Allis-Chalmers Authorized Dealers, Certified Service Shops and Sales Offices throughout the country.



MOTORS — 1/2 to 25,000 hp and up. All types.

CONTROL — Manual, magnetic and combination starters; push button stations and components for complete control systems.



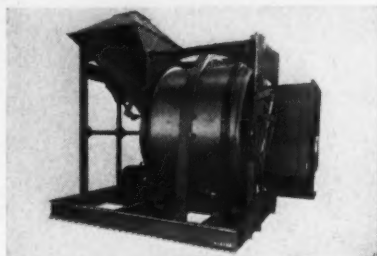
TEXROPE — Belts in all sizes and sections, standard and Vari-Pitch sheaves, speed changers.

Texrope, Vari-Pitch and Electrifugetal are Allis-Chalmers trademarks.
ALLIS-CHALMERS

When inquiring check CP 1723 on handy form, pgs. 2-3

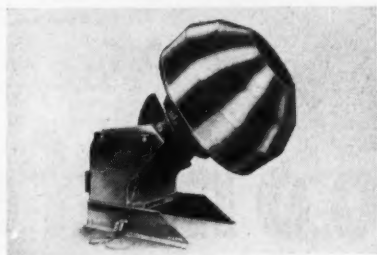
The right mixer for top quality

Whatever your product, you'll find
the one right mixer in the broad line of
**WORTHINGTON-RANSOME
INDUSTRIAL MIXERS**



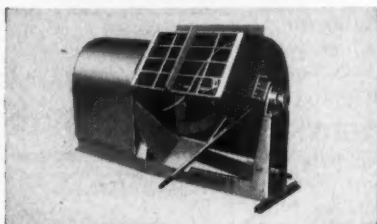
HORIZONTAL DRUM. For mixing refractory cements, soap powder, zinc furnace charges, linoleum compounds, dyes, glass batches, plastic powders, insulating cements, etc.

Sizes: 13 to 110 cu ft per batch



ROTATING-TILTING PAN TYPE. For mixing—and coating, coloring, tumbling, polishing and finishing drug tablets, candy, pills, dry gelatin, powdered milk, etc.

Sizes: up to 3000 lb per batch



HORIZONTAL PADDLE MIXER. Has revolving spiral paddles for mixing plastic cements, foundry sands, clay, etc. Drum tilts to discharge batch.

ALSO: several other types representing the outstanding line of mixers for the process industries, built from designs developed from nearly a century of mixer experience. Write for bulletin.

WORTHINGTON



WORTHINGTON PUMP AND MACHINERY CORP.
RANSOME INDUSTRIAL MIXER DIVISION
DUNNELL, NEW JERSEY YRO-3

When inquiring check CP 1724 on handy form, pgs. 2-3

New Literature

Tells how to select proper surface active agent

Thirty-six-page pamphlet treats surface active agents, their characteristics, and a scientific system of classification and selection.

One of the most important properties of a surface active agent is the relative strength of the water-soluble components of its molecules to the oil-soluble components. System expresses this relative strength numerically so that its value for a blend of agents is the sum of the values of its constituents, in the proportions in which these constituents are used. This numerical value is termed "hydrophile-lipophile balance", or HLB.

The usefulness of the HLB system lies in the fact that for a given emulsion, the best emulsifier is obtained at the same HLB number. Thus the search for an emulsifier is reduced to simply finding the optimum HLB number, and then trying various emulsifiers or mixtures of emulsifiers with this HLB value until a satisfactory solution is obtained.

Pamphlet describes surface active agents briefly, then goes into thorough discussion of choice of agents. Topics include factors in selecting an emulsifier, procedure in selection, and how to calculate HLB value of mixtures. Featured is a computing graph that eliminates algebraic figuring for mixtures of 2 surface active agents.

"Surface Active Agents" is issued by Atlas Power Company, Industrial Chemicals Dept., Dept. CP, Wilmington, Del. When inquiring specify CP 1725 on handy form, pages 2 and 3.

Lists, describes 17 items of lab equipment

Pictures and brief descriptions of 17 items of laboratory equipment are given in 4-page brochure. Items include tilters, brush holders, ice shields, and heating mantles. "Lab Care" is issued by Metal Products Co., Dept. CP, 1308 Evergreen, Houston 17, Texas. When inquiring specify CP 1726 on handy form, pages 2 and 3.

Slide rule simplifies choice of air duct size

Circular slide rule simplifies proper selection of air duct size, when air volume in cfm and air velocity in fpm are known. To operate, align these known factors and read off friction loss per 100' of duct, diameter of round duct, and dimensions of rectangular duct that will carry the load.

To obtain Ductulator, remit \$1 direct to The Trane Co., Educational Div., Dept. CP, LaCrosse, Wis. When inquiring specify CP 1727 on handy form, pages 2 and 3.

Alcohols and glycols in brake fluids

Four-page bulletin offers concise information on brake fluids and their formulation. Data is presented to show that alcohols and glycols can be formulated into SAE specification brake fluids with properties as good as or better than those formulated with more expensive materials. Major SAE specifications are given and explained. Critical data on 20 typical formulations are listed, including flash

point, boiling point, stability boiling point, and rubber swelling. Bulletin E-2 is issued by Celanese Corporation of America, Dept. CP, 180 Madison Ave., New York 16, N. Y. When inquiring specify CP 1728 on handy form, pages 2 and 3.

Matched bulletins describe troughing and return idlers

Information on troughing and return idlers which eliminate "high-speed rattle" and reduce maintenance costs is contained in twin bulletins. Design features and their application to permanently lubricated ball-bearing type idlers and roller-bearing idlers are described. Each type of troughing idler is designed for specific fields of use, but with wide range of applications.

Manufacturer will advise on models best suited to any unusual conditions. Copies of idler bulletins are issued by The Conveyor Company, Dept. CP, 3260 E. Slauson Ave., Los Angeles 58, Calif. When inquiring specify CP 1729 on handy form, pages 2 and 3.

Liquid-vapor constants — two volumes

Data useful in establishing tower design is contained in these 2 volumes, one consisting of charts on liquid-vapor constants, the other covering fugacities for light hydrocarbons in mixtures. Charts are based on the Kellogg Equation of State, and have been checked by application to multi-component experimental work in company's labs and various universities.

Graphs are not only functions of temperature and pressure but also of composition of both liquid and vapor phases. They cover any mixture of hydrocarbons from methane to n-heptane, including unsaturates. Both volumes are 8 1/2 x 11". Instructions for use, and sample calculations for bubble points, dew points, and equilibrium flash points are included.

Volume covering pressures from 14.7 to 1000 psi is priced at \$20. An additional \$10 will be charged for the volume of fugacity charts for pressures from 1000 to 3600 psi. Copies are available from Chemical Engineering Div., The M. W. Kellogg Company, Dept. CP, 225 Broadway, New York 7, N. Y. When inquiring specify CP 1730 on handy form, pages 2 and 3.

Viscometer gives readings directly in centipoises

Viscometer described in 6-page brochure is suitable for both lab and plant applications. Manufactured in a number of models, viscometers are available for testing, studying, and controlling a wide variety of materials ranging in viscosity from less than 1 to over 32,000,000 centipoises. Ratio of maximum to minimum vary in specific models from 100-1 to 4000-1.

Torque on a spindle rotating at constant speed is measured by a calibrated spring; dial is graduated so that readings are made directly in centipoises. Special spindles for unusual requirements as well as extension spindles for process control work are available. Changes in viscosity as small as 0.2% of scale can be observed.

Unit is portable, weighs 3 1/2 lb, and can be provided for

use with 110 or 220 V, AC or DC lines. "Synchro-Lectric Viscometer" is issued by Brookfield Engineering Laboratories, Inc., Dept. CP, Porter St., Stoughton, Mass. When inquiring specify CP 1731 on handy form, pages 2 and 3.

Working procedures for chrome alloys

Procedures for working and fabricating Croloys, described as ferritic air-hardening alloys containing from $\frac{1}{2}$ to 9% chromium, are described in technical bulletin. Replacing 1946 publication on this topic, bulletin is pocket sized handbook with leatherette cover. It is indexed and illustrated with photographs, diagrams, and tables.

Contents include information on composition, general characteristics, annealing practice, methods of hot and cold working, and welding. Also given is condensed technical data and general reference tables. Technical Bulletin 9B is issued by The Babcock & Wilcox Tube Company, Dept. CP, Beaver Falls, Pa. When inquiring specify CP 1732 on handy form, pages 2 and 3.

Shows positive displacement and centrifugal pumps

Twin bulletins present lines of positive displacement and centrifugal pumps. Bulletin 100 gives engineering data, diagrams, and applications for over 100 close-coupled or belt-driven centrifugal pumps moving 70 gpm at pressures to 70 psi.

Bulletin 200 offers similar information on positive displacement pumps. Vane pumps move non-lubricating liquids at rates to $5\frac{1}{2}$ gpm and pressures to 60 psi; gear pumps operate at rates to 1 gpm and pressures to 200 psi. Both bulletins are issued by Eastern Industries Incorporated, Dept. CP, New Haven, Conn. When inquiring specify CP 1733 on handy form, pages 2 and 3.

Humidity test conditions maintained in chambers

Four-page bulletin includes information on the performance, construction, and general specifications of line of relative humidity testing chambers. Chambers are completely self-contained units which are mechanically refrigerated and will automatically maintain humidity conditions from 20% to 95% at temperature ranges from 35 to 175°F. Capacities are 10, 20, or 30 cubic feet. Operating power is drawn from 110 v, 60 cycle, single phase line.

Bulletin RH-550 is issued by Bowser Inc., Refrigeration Division, Dept. CP, Terryville, Conn. When inquiring specify CP 1734 on handy form, pages 2 and 3.

Includes information on recording gauges

Information on line of pressure recording gauges is contained in 32-page bulletin. Completely described are gauges with maximum ranges from 2" of water to 10,000 psi, vacuum gauges, low range draft and pressure gauges, barometers, and absolute pressure gauges for ranges as low as 0 to 6mm Hg. Measuring elements, operating principles, recording charts, and accessories are also included.

Numerous photographs, reproductions of actual chart records, and sketches of applications are shown. Bulletin G621 is issued by The Bristol Company, Dept. CP, Waterbury 20, Conn. When inquiring specify CP 1735 on handy form, pages 2 and 3.



Only Christian Becker Balances are designed with column mounted to base casting—not to glass base plate. Always perpendicular! Never out of line! Accuracy is permanent!

PACING THE ADVANCE OF ALL SCIENCE...

The new Christian Becker Analytical Balance is ALL NEW! The first true advance in more than 50 years! New design! New metals! New principles of construction...and this is what such newness means!

FASTER! New 'Alnico' magnetic damper rests beam quickly! Minimizes beam swing! New vertical-rider-lifter covers all graduations in a single motion!

EASIER! Finger-tip controls! Far greater working area! Ample hand room! New, wide door! Intense, diffused internal illumination!

CLEANER! New modern design makes cleaning easier than ever before!

MOST RELIABLE! All planes ground optically flat! Knife edges set in special alloy beam... Distortion is out!

There's a new feature-packed Christian Becker Balance for every use. Ask your Laboratory Supply House Salesman to show you the new Christian Becker soon. Write for details.

Christian Becker Division of **THE TORSION BALANCE COMPANY**

MAIN OFFICE AND FACTORY: CLIFTON, NEW JERSEY • SALES OFFICES: CHICAGO • DALLAS • SAN FRANCISCO

When inquiring check CP 1736 on handy form, pgs. 2-3

New Checkweighing Scale for Filled Bags . . .



*"Sales and Service
from Coast to Coast"*

Here is a new EXACT WEIGHT high-speed precision scale designed for checkweighing filled bags. Handles any type bag coming down conveyor and across the scale in an upright position. Scale is set in conveyor line after the filling machine. Each bag is weighed; correct bags going to the sewing machine, over and underweight bags are removed for trimming. Features are (1) checkweighs each bag, (2) fits into any production line, (3) illuminated dial that warns operator when filling machine adjustments should be made, (4) standard capacity to 100 lbs., more weight if needed. This is ideal equipment for checkweighing fertilizer, or processed chemicals of all kinds generally going into bags. For full details write for circular covering EXACT WEIGHT Scale Model No. 1302-R.

EXACT WEIGHT SCALES
Industrial Precision
THE EXACT WEIGHT SCALE COMPANY

904 W. Fifth Avenue COLUMBUS 8, OHIO
2920 Bloor St. W., TORONTO 18, CANADA

When inquiring check CP 1737 on handy form, pgs. 2-3

NEW LITERATURE

Pump bulletin contains performance curves

Line of centrifugal pumps described in bulletin consists of 5 basic types in single or 2-stage styles. Pumps are designed for small boiled feed service, cooling and condensate service, circulation systems, and general water or volatile liquid service.

Bulletin includes specifications, motor data, and materials of construction. Featured are rating curves for 50 and 60 cycle speeds at 1500, 1800, 3000, and 3600 rpm. Bulletin W-306-B1 is issued by Worthington Pump and Machinery Corporation, Dept. CP, Harrison, N. J. When inquiring specify CP 1738 on handy form, pages 2 and 3.

Details chemicals recovered from coal and coal tar

Properties of 58 commodity and specialty chemicals recovered in the coking of coal or derived from the distillation of coal tar are described in 44-page booklet. All of the compounds listed are offered in commercial quantities, although some have not yet found commercial use.

Data sheets present physical and chemical properties of the compounds. Because quality requirements vary for different uses, properties of only the pure compounds are presented. Applications are suggested, and much general information given. Booklet TO5-500 is issued by Koppers Company, Inc., Tar Products Div., Dept. CP, Pittsburgh 19, Pa. When inquiring specify CP 1739 on handy form, pages 2 and 3.

Motivating force of siphon is provided by steam jet

Full line of steam jet siphons which use the energy of steam under pressure to pump, heat, and mix liquids, as well as to handle solids, is described in 24-page, 2-color bulletin. Bulletin is divided into 3 sections: 1st section details design, construction, and operation of the various types; 2nd section covers special-purpose and corrosion resistant siphons; and 3rd section gives many typical applications.

Sizes, dimensions, and capacities of each type are given in tabular form. Text material is supplemented by photographs and color drawings showing operations and working parts. Bulletin 2A is issued by Dept. JC, Schutte and Koerting Company, Dept. CP, 12th and Thompson Sts., Philadelphia 22, Pa. When inquiring specify CP 1740 on handy form, pages 2 and 3.

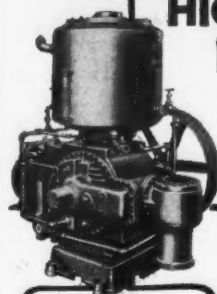
Equipment and methods for document reproduction

Sixteen-page booklet describes photographic materials and methods for reproducing engineering drawings and business documents. Improved legibility is reported for system.

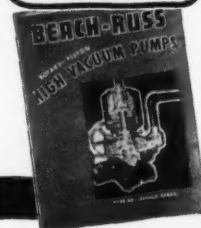
Booklet provides information on reproduction of tracings, blueprints, and opaque drawings on paper, film, and cloth. Specialized recommendations describe suggested procedures for restoring old drawings and eliminating hand tracing.

Additional information is provided on reproducing business forms, correspondence, and card records. Microfile equipment is briefly described, together with projection materials

HIGH VACUUM is "SUCKER STUFF" for BEACH-RUSS Vacuum Pumps



- **Faster Pump Down**
- **Lowest Pressures**
- **Highest Efficiency**
- **Longer Service**



Whether it's in chemical processing such as distillation, extraction or impregnation; metallizing or coating; clay deairing, electronic work or vacuum pick-up-and-place, position-and-hold or feeding of sheets, or other vacuum machine operations, Beach-Russ Single Stage Pumps provide the required low pressure fast and steadily. Two types of pumps are available:

Type SS Rotary Pumps for pressure to 5 mm. Hg. absolute on dry and semi-wet work. Capacities—6 to 375 c.f.m.

Type RP Rotary Piston Pumps for pressures to 10 microns Hg. absolute and lower on dry or wet operations. Capacities—17 to 845 c.f.m.

Let Beach-Russ Pumps improve your vacuum operations. Write for Catalog.

BEACH-RUSS CO.

46 Church St., New York 7, N. Y.

When inquiring check CP 1741 on handy form, pgs. 2-3

**Free TIP on TOP service in
corrosion resistance**

**DURCO TYPE F
TEFLON LINED
PLUG VALVE**
Corrosion Resisting

Amazing Teflon Liner plus sound DURCO design make the Type F a plug valve you should know about. Bulletin 647 gives complete information. Available now.



Write today to:

THE DURIRON COMPANY, INC., Dayton 1, Ohio
When inquiring check CP 1742 on handy form, pgs. 2-3

NEW LITERATURE

for making prints from microfilm negatives and for making change-of-scale copies.

"Modern Drawing and Document Reproduction" is issued by Industrial Photograph Div., Eastman Kodak Company, Dept. CP, Rochester 4, N. Y. When inquiring specify CP 1743 on handy form, pages 2 and 3.

Pipes made corrosion-proof by electrical tape

Use of an electrical tape to protect pipelines against corrosion by water, salt water, acids, alkalis, and soils is described in 4-page illustrated brochure. Tape has a polyvinyl chloride backing. It is 10 mils thick, with tensile strength of 30 lb./inch width. Its elongation is 125%, enabling it to fit joints and contours snugly. Dielectric strength is 10,000 volts, and insulation resistance is 50,000 megohms.

Tape is recommended for use on pipes from 3 to 36" diameter, either above or below ground. It is applied by merely wrapping it around pipe or joint, usually in a half-lap. Included in brochure are 8 pictures showing this application technique, and tables of chemical, physical, and electrical properties. "Electrical Tape No. 22" is issued by Minnesota Mining and Manufacturing Co., Dept. CP, 900 Fauquier St., St. Paul 6, Minn. When inquiring specify CP 1744 on handy form, pages 2 and 3.

Catalog specifies heat exchangers

Standard line of heat transfer equipment is described in 22-page catalog. Publication explains equipment's application to the petroleum, chemical, petro-chemical, and other industries. Also detailed are the services that the company offers in the design and application of process equipment.

Catalog describes a number of standard heat exchangers and gives some of the factors involved in correctly setting up a heat transfer operation. Considerable factual information is given on the various types of heat exchangers as well as on construction details. Catalog 508 is issued by The Patterson Foundry & Machine Company, Dept. CP, East Liverpool, O. When inquiring specify CP 1745 on handy form, pages 2 and 3.

Describes operation of dust and fume collectors

Illustrated, 8-page bulletin describes the operation of cloth tube type dust and fume collectors used in recovering values in gases from roasters, sintering machines, induction furnaces, and similar equipment.

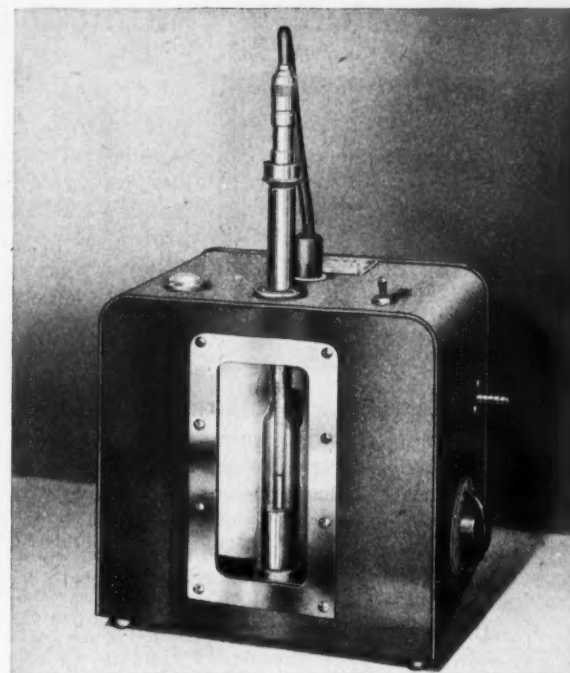
Wide selection of filter fabrics, including new synthetics, has increased the scope of cloth filtration so that hot and corrosive gases may be effectively and economically handled. It is reported that uniform recoveries in excess of 99% by weight of the fume entering the collector are being effected, and that the collected material can be reprocessed without dewatering, filtering, or drying.

Bulletin 282 is issued by American Wheelabrator and Equipment Corp., Dept. CP, 8 S. Byrkit St., Mishawaka, Ind. When inquiring specify CP 1746 on handy form, pages 2 and 3.

For New **ACCURACY** with Laboratory Apparatus Specify *** Precision** — more precise, more certain — to be **Sure**



PRECISION-FREAS Ovens, Dryers, etc. are definitely the finest made for promptly producing, accurately maintaining and evenly distributing a desired temperature within 0.5° C. Table and floor models for every purpose, exclusive heater-bank and thermostat with 5-year Guarantee. Bulletin 8-330



PRECISION Micro-Set Manostat selects and holds an exact (0.05° mm Hg) vacuum from Room to 0.1 mm of Absolute . . . constantly without distracting adjustment. Used between pump and distillation system, this instrument is more than accurate—fingertip control-setting, compact, notably low priced. Bulletin 8-866

Among the 3,000 Precision products—"utility" items to highly specialized apparatus—are other instruments to make your work easier, surer, more economical. Probably some of your equipment warrants replacement, doubtless you can use additions . . .

Precision Scientific Company

3737 W. CORTLAND STREET—CHICAGO 47

*** FINEST Research and Production Control Apparatus**

NEW YORK • PHILADELPHIA • ST. LOUIS • HOUSTON • SAN FRANCISCO

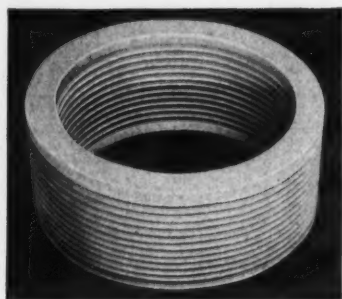
When inquiring check CP 1747 on handy form, pgs. 2-3

**ORDER FROM YOUR
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... or write us for details
on above or your individual
problem . . . today.

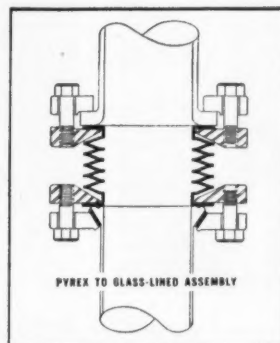
TEFLON EXPANSION JOINTS

**Tough • Heat-Resistant
Absolutely Chemical-Proof**

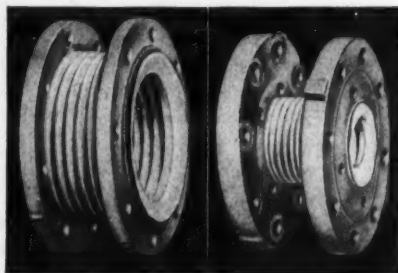


If your problem is thermal expansion, vibration, misalignment or any other condition demanding a flexible, chemical-proof piping section, then **USG's Chemiseal Teflon Expansion Joints** can save you money. They're tough, long-lasting and completely impervious to chemical attack.

Fabricated by a special **USG** process, **Chemiseal Expansion Joints** accommodate axial contraction and expansion or any reasonable amount of misalignment or vibration without danger of cracking or bursting. They're designed for 25 lb. pressure and are serviceable in a wide temperature range (-150° F. to 400° F.). Remember—**Teflon** is so inert chemically that it cannot be attacked by nor contaminate any known chemical used commercially.



Chemiseal Teflon Expansion Joints are available for any type of equipment and for a wide variety of operating conditions. Joints are normally supplied with suitable combination flanges and gaskets drilled to 150 lb. **A.S.M.E.** standard. Exact requirements must be specified, so we'll be glad to send you **Catalog No. 212** containing complete information.



First in Teflon Stock and Fabricated Parts...

**Teflon Products Division
UNITED STATES GASKET COMPANY
610 N. 10th Street
CAMDEN, NEW JERSEY**

When inquiring check CP 1748 on handy form, pgs. 2-3

NEW LITERATURE

Reviews tungsten and molybdenum

Illustrated, 24-page booklet reviews basic aspects of tungsten and molybdenum. In text, photographs, and tables, the booklet covers metallurgy; physical, mechanical, and chemical properties; uses and applications; fabricating techniques; and available forms.

Featured are seamless molybdenum tubing and molybdenum parts with protective coatings for high temperature service in air. Also mentioned is company's engineering service to assist in developing new applications for both metals.

"**Fansteel Tungsten and Molybdenum**" is issued by **Fansteel Metallurgical Corporation**, Dept. CP, North Chicago, Ill. When inquiring specify CP 1749 on handy form, pages 2 and 3.

Presents grinders and mixers

Company's complete line of grinding and mixing equipment is shown and specified in 18-page bulletin. Of special interest is full-page description of tubular grinding media which increase capacity of mills 60%.

Bulletin 265 is issued by **The U. S. Stoneware Co.**, Process Equipment Div., Dept. CP, Akron 9, O. When inquiring specify CP 1750 on handy form, pages 2 and 3.

Machine vibration cut by rubber mounting

Featuring step-by-step description of installation methods, catalog section introduces 12" square rubber pad that muffles shock, noise, and vibration of machinery.

Section pictures each of the parts for completed mounting and includes cutaway sketches of installations on vertical and inclined machines. Photographs of typical mountings are also shown.

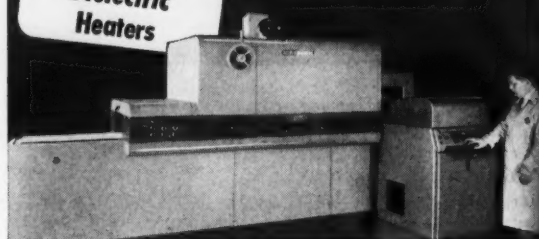
Catalog Section 7290 is issued by **The B. F. Goodrich Co.**, Dept. CP, Akron, O. When inquiring specify CP 1751 on handy form, pages 2 and 3.

Specifies complete line of industrial trucks

Eight-page, 2-color catalog contains basic specifications on complete line of material handling equipment. Items listed include gas- and electric-powered fork trucks; industrial towing tractors; tractors for handling bulk

Cut Drying Time to
Minutes...Improve
Uniformity

**Allis-Chalmers
Dielectric
Heaters**



YOU CAN END overbaking, burning of thin sections, and case hardening of outer layers in many drying processes with an **Allis-Chalmers dielectric heater**.

In turn, you get high speed, uniform drying of a product. For example, rayon cakes dried by **Allis-Chalmers dielectric heaters** have no damp centers, or overheated outside layers. Result—uniform shrinkage, uniform coloring, better cloth.

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**ALLIS-CHALMERS, 1151A SO. 70 ST.
MILWAUKEE, WIS.**

A-3000

ALLIS-CHALMERS



When inquiring check CP 1752 on handy form, pgs. 2-3



**SPRACO
NOZZLES**

Write for NOZZLE CATALOG to
**SPRAY ENGINEERING CO.
125 CENTRAL STREET • SOMERVILLE 45, MASS.**

When inquiring check CP 1753 on handy form, pgs. 2-3

CHEMICAL PROCESSING

Write for this new *Bulletin*
Get the facts
on how you can
save on
DRUM CLOSURES



NEW LITERATURE

materials; and 20 special truck attachments.

Fork truck specifications cover capacity, turning radius, load center, minimum intersecting aisle, truck dimensions, fork length, upright height, fork lift height and service weight.

Tractor specifications include drawbar pull, capacity in tons, turning radius, overall dimensions, tire sizes, and weight. Tractor specifications give capacities in cubic feet and pounds, turning radius, overall dimensions, body dimensions, and weight.

Special attachments listed include overhead guard; load safety rack; ram; crane; fork extensions; shovel; 360° rotating device; rotating roll clamp; upender; side shifter; cotton clamp; and clamp-lift.

Other attachments are heavy-duty clamp; swinging boom; Bartel device; brick forks; cabs; snow plows; and pitchfork shovel.

"Materials Handling Equipment" is issued by Industrial Truck Div. of Clark Equipment Company, Dept. CP, Battle Creek, Mich. When inquiring specify CP 1756 on handy form, pages 2 and 3.

Paradichlorobenzene — volatile fungicide

Eight-page illustrated bulletin describes laboratory and field studies of paradichlorobenzene as a volatile fungicide. This chemical, already widely used in mothproofing, was found to be an effective agent in controlling mildew.

In addition to properties and specifications, bulletin includes recommended application techniques. Technical Bulletin O-63 is issued by Organic Chemicals Div., Monsanto Chemical Co., Dept. CP, St. Louis 4, Mo. When inquiring specify CP 1757 on handy form, pages 2 and 3.

Presents reference guide to silicone products

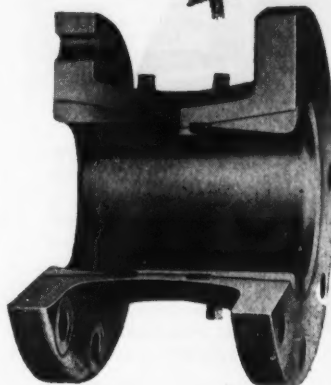
Four-page folder serves as reference guide to line of silicone products. Products include bonding resins, damping and hydraulic media, defoamers, di-electrics, diffusion pump fluids, high temperature baths, lubricants, polishes, protective coatings, release agents, rubber, chemicals, and water repellents.

"Dow Corning Silicone Products" contains brief descriptions of each product. It is issued by Dow Corning Corporation, Dept. CP, Midland, Mich. When inquiring specify CP 1758 on handy form, pages 2 and 3.

FOSTER FLOW TUBE

Genile Patents

FIVE FEATURES



for your Consideration:

- 1 ... **Compactness** Note in the picture above the short axial length. Tubes 3" in size and larger are approximately 1 to 1½ diameters long, depending upon the velocity in the main. For high main line velocities (above 10 ft/sec. for liquids) tubes are less than 1 diameter in length.
- 2 ... **Ease of Installation** Due to its compactness and because it requires no straight runs upstream or downstream, except near valves or regulators, the total space required for installation is but a small fraction of that necessary for other primary devices. It can be installed as readily as a fitting and in that section of the line most conducive to steady flow conditions. Moreover, it can be installed in the plant proper, eliminating the need for expensive vaults or housing.
- 3 ... **Reversibility** The Foster Flow Tube is symmetrical transversely; upstream and downstream nozzles and ports are identical. This means that where processing calls for flow reversal, the meter can readily handle the changes.
- 4 ... **Low Head Loss** Where head losses are important Foster Flow Tubes are designed with a main-to-throat ratio that provides negligible unrecovered head losses.
- 5 ... **Accuracy** All Foster Flow Tubes are furnished with calibration curves obtained in laboratory tests simulating installation conditions and can therefore be guaranteed to an accuracy to meet any specification.

Foster Flow Tubes are recommended for a wide range of services metering the flow of liquids and wet or dry gases. They are available in all commercial pipe sizes with flanged or screwed connections. Standard lining is bronze but other materials are available. In writing for further information, give processing and installation details of your metering requirements.

FOSTER ENGINEERING Company

835 Lehigh Avenue • Union, N. J.

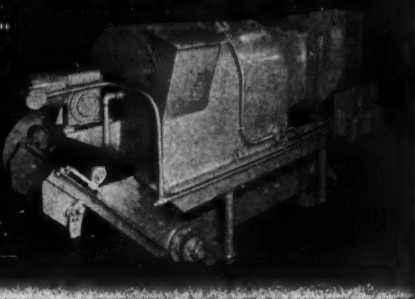
PRESSURE REGULATORS...RELIEF AND BACK PRESSURE VALVES...CUSHION CHECK VALVES...ALTITUDE VALVES...FAN ENGINE REGULATORS...PUMP GOVERNORS...TEMPERATURE REGULATORS...FLOAT AND LEVER BALANCED VALVES...NON-RETURN VALVES...VACUUM REGULATORS OR BREAKERS...STRAINERS...SIENS...SAFETY VALVES...FLOW TUBES

When inquiring check CP 1759 on handy form, pgs. 2-3

for DUST SUPPRESSION

where headroom is limited

Type "CH"
HYDRO-
CLONE



Whiting Type "CH" Hydro-Clone is designed to handle heavy loadings of dust in locations with extremely low headroom and limited space. It absorbs fumes and gases.

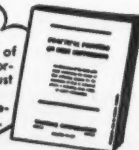
Suppresses Dust with Water Hydro-Clone Equipment suppresses dust with water,

reducing it to harmless, easily disposable sludge removed automatically with a conveyor. There are no moving parts in the air stream...no cloth bags or screens. Write for Bulletin FY-165 for full information of Type "CH" Hydro-Clone.

WHITING CORPORATION

15667 Lathrop Ave.
Harvey, Illinois

FREE
New booklet of
Practical Information on Dust
Collection.
Ask for Bulletin FY-142.



When inquiring check CP 1755 on handy form, pgs. 2-3

NOVEMBER, 1950

Safe all the Way



One of a series of typical Propane Truck Loading Racks

CHIKSAN Style 50 x 5 Counterbalance Swivel Joint

OKADEE L. P. G. Valve

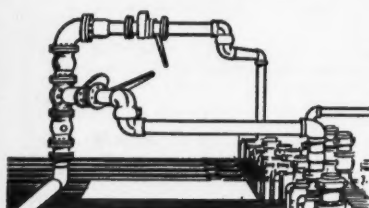
Eliminate all the weak spots in your L. P. G. loading racks! Use CHIKSAN Ball-Bearing Swivel Joints, WECO Wing Unions, Okadee Valves and WECO Hi-Speed Thread Seal...and get matched safety all the way... plus dependable performance, low maintenance cost, easy handling and long life.

Wherever you handle liquids, vapors or gases through flexible lines, this engineered combination saves you time and money. CHIKSAN Engineers will gladly assist you in designing flexible lines for the safe handling of a wide range of products...in any length...any size...any pressure to 15,000 psi.

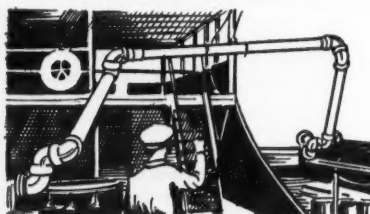
REPRESENTATIVES IN PRINCIPAL CITIES

SOLD BY LEADING SUPPLY STORES EVERYWHERE

Play safe all the way! Use CHIKSAN Ball-Bearing Swivel Joints to make up your loading and unloading lines. With them, you get unlimited flexibility with the strength, long life and safety of steel. You get greater protection...greater safety...and greater economy with CHIKSAN.



Transfer lines using CHIKSAN Ball-Bearing Swivel Joints save cost of extra valves and fittings...eliminate contamination losses.



CHIKSAN ALL-METAL Marine and Barge Hose is easier to handle...safer...and more economical.

WRITE FOR CATALOG NO. 30



CHIKSAN COMPANY

AND SUBSIDIARY COMPANIES
Chicago 3, Ill. BREA, CALIFORNIA Newark 2, N. J.
WELL EQUIPMENT MFG. CORP. HOUSTON 1, TEXAS
CHIKSAN EXPORT CO. BREA, CALIFORNIA NEWARK 2, N. J.

BALL-BEARING SWIVEL JOINTS FOR ALL PURPOSES

When inquiring check CP 1760 on handy form, pgs. 2-3

NEW LITERATURE

Motors and generators for DC service

Four-page bulletin presents full construction, assembly, and application data on line of DC motors and generators. Ratings are 1/2-200 hp, 1-150 kw. Bulletin B-1001 is issued by Star-Kimble Motor Division of Miehle Printing Press & Manufacturing Co., Dept. CP, Bloomfield, N. J. When inquiring specify CP 1701 on handy form, pages 2 and 3.

Stacks in aisles 5 to 6 feet wide

Lift truck described in 2-page bulletin will operate in aisles 5 to 6' wide. Truck is built to handle double-faced pallets 48 x 48" max, loads to 2000 lb.

Telescopic model will elevate to 130"; non-telescopic model elevates to 65". Power is provided by 400-amp-hr battery. Front wheels straddle pallets.

Containing specifications, dimensioned drawings, and photographs of trucks in use, Bulletin 702 is issued by LYON-Raymond Corporation, Dept. CP, 7657 Madison St., Greene, N.Y. When inquiring specify CP 1762 on handy form, pages 2 and 3.

Silicofluorides harden concrete, cement

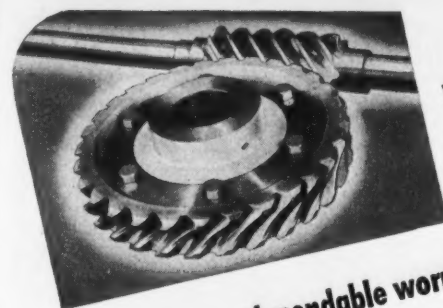
Magnesium and zinc silicofluorides are described in 8-page bulletin. Both are used as surface treatments on concrete, cement, stucco, mortar, plaster, brick, and similar porous materials to protect against wear and corrosion.

"Magnesium-Zinc Silicofluorides" is issued by The Davison Chemical Corporation, Dept. CP, Baltimore 3, Md. When inquiring specify CP 1763 on handy form, pages 2 and 3.

Handbook explains cost estimation

Scope of 109-page cost estimation handbook is best exemplified by chapter headings: "Preliminary Considerations"; "Equipment Cost Estimate"; "Short Cut Methods of Estimation"; "Manufacturing Cost Estimates"; "Short Cut Method of Computing Manufacturing Costs"; "Capital Investment Estimate"; "Return on Investment"; and "Break Even Charts".

Graphs, charts, and tables accompany text. Data was compiled from industrial files, processed, and brought up-to-date. To obtain "Chemical En-



Whether you want standard drives or special units, Cleveland can serve you.

Prompt service on dependable worm gearing

CLEVELAND offers a complete line of worm-gear sets and speed reducers, including the popular fan-cooled Speedaire, to meet the needs of any machinery or equipment builder or user. Representatives in all major industrial centers are at your service. Write for the latest Cleveland catalog, indicating your requirements. Your inquiry will receive prompt attention. The Cleveland Worm & Gear Company, 3257 East 80th Street, Cleveland 4, Ohio.

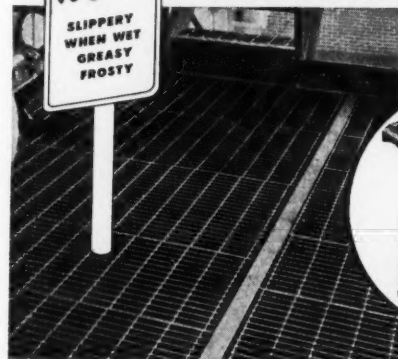


When inquiring check CP 1764 on handy form, pgs. 2-3

NOT
SLIPPERY
WHEN WET
GREASY
FROSTY

Because it's BLAW-KNOX "TWISTED BAR" Electroforged

Steel Grating



Blaw-Knox Stair Treads available with rolled diamond checker plate nosing, twisted cross-bar nosing or abrasive nosing.

THE twist does the trick—twisted bar construction gives greater traction, makes slipping impossible even if the grating is wet, greasy or icy. The slightly roughened surface grips shoe soles for extra safety, yet the over-all surface is level. Trucks and other wheeled vehicles roll freely. In addition, Blaw-Knox Steel Grating is electroforged into one piece for extra strength and durability.

OTHER ADVANTAGES: Maximum open area for light and air. Self-cleaning, easy to maintain, economical to install.

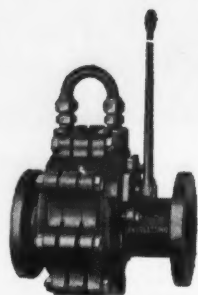
BLAW-KNOX DIVISION of Blaw-Knox Company
2076 Farmers Bank Bldg., Pittsburgh 22, Pa.

BLAW-KNOX ELECTROFORGED STEEL GRATING

When inquiring check CP 1765 on handy form, pgs. 2-3

CHEMICAL PROCESSING

Valves That Keep VISCOUS MATERIALS Flowing Freely



When you handle coal tar products, asphalts, resins, waxes, molten sulfur, varnish and other materials which congeal at ordinary temperatures, you won't be troubled with clogged valves if you use EVERLASTING Steam Jacketed Valves. The ample jacket space of these valves surrounds the ports as well as the body...

provides extensive heating surface and correct temperature to insure fluidity. Besides, the design of the valves is quick acting... non-wedging... and self-grinding... and they have the straight-through flow and lasting tightness that have made EVERLASTING Valves famous for over 40 years. Write for complete information.

EVERLASTING VALVE CO., 49 Fisk Street, Jersey City 5, N. J.
Trade Mark "EVERLASTING" Reg. U. S. Pat. Off.

EV-344A

Everlasting Valves

for everlasting protection

When inquiring check CP 1766 on handy form, pgs. 2-3

International

BALL MILLS

RIBBON MIXERS
BELT OR MOTOR DRIVEN

PORTABLE MIXERS
MEDIUM and HEAVY DUTY
Medium Design and many different types, Direct Drive, Gear Motor, Slow-Speed.

PERMANENT MIXERS
With or without Tanks—Top or Side Entrance—Stirrers of the propeller or turbine type.

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NEW YORK 13 Park Row
DAYTON 1, OHIO
CHICAGO 407 S. Dearborn St.
LOS ANGELES—120 N. Main St. — Pasadena Branch, Ca.

When inquiring check CP 1767 on handy form, pgs. 2-3
NOVEMBER, 1950

NEW LITERATURE

Engineering Cost Estimation" remit \$5 direct to Chemonomics, Inc., Dept. CP, 400 Madison Ave., New York 17, N.Y. When inquiring specify CP 1768 on handy form, pages 2 and 3.

Speed changers offer wide range of fixed ratios

Small, fixed ratio speed changers are described and illustrated in 4-page bulletin. Ratios are offered from 10:9 to 531,440:1.

Three series are available: for applications where rotational accuracy, backlash, and smoothness are not important; for applications where rotational accuracy, low losses, and smoothness are important; and for applications requiring zero backlash where low losses and smoothness are secondary considerations.

Ratings, dimensions, and other specifications are contained in Bulletin 100, issued by Metron Instrument Company, Dept. CP, 432 Lincoln St., Denver 9, Colo. When inquiring specify CP 1769 on handy form, pages 2 and 3.

Describes cornstarch explosion hazards

Bureau of Mines publication describes explosion hazards present when powdered cornstarch is handled in large quantities.

Lab studies made by the Bureau indicate need for strict precautions to eliminate sources of ignition and to prevent dust cloud formations. Results of these studies are to be embodied in a proposed safety code.

Report describes apparatus and procedures followed for testing; contains graphs and tables; and suggests methods of lessening explosion hazards.

Report of Investigations 4725 is issued by Bureau of Mines, Publications Distribution Section, 4800 Forbes St., Pittsburgh 13, Pa.

Booklet discusses alkyl-titanates

Eight-page booklet discusses various aspects of alkyl-titanates, including their formation, certain organic titanates, methods of preparation, their uses, modified products, and effects on oils.

To obtain "A Review of Developments of Alkyl-Titanates", remit 15c direct to Bureau of Public Information, New York University College of Engineering, New York 53, N. Y.

PROBLEM: To find a refrigeration compressor blade featuring self-lubrication...to be non-gumming and corrosion-resistant...and immune to warping.

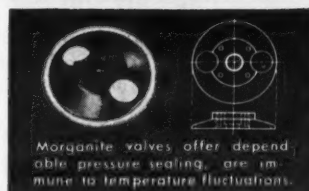
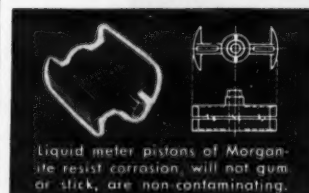
SOLUTION: Blades of self-lubricating Morganite provided long service...no sticking...no chemical deterioration.



MORGANITE

SELF-LUBRICATING
REFRIGERATION
COMPRESSOR BLADES

The substantial savings on maintenance and replacement costs made possible in the operation of cooling compressors is only one example of Morganite effectiveness in increasing efficiency. Morganite valves, seals, rings, slides and other self-lubricating components provide a ready solution to many stubborn mechanical problems. Morganite has frequently offered the one practical answer to industry-old problems of design and operation.



FOR DETAILED INFORMATION consult the Morganite Catalog in Sweets File for Product Designers; for engineering counsel or specific proposals, call Morganite



Morganite
INCORPORATED
LONG ISLAND CITY 1, NEW YORK



Manufacturers of Morganite Carbon Brushes for all motor and generator applications, and Morganite Carbon Piles

When inquiring check CP 1770 on handy form, pgs. 2-3

Use Self-Dumping Containers



SAVE 50% LABOR-TIME

WITH

ROURA Stainless Steel Self-Dumping HOPPERS



Reduce **FATIGUE** Only ROURA Has the Exclusive Instant Release (Patented) Handle

EASY TO CLEAN and TO KEEP CLEAN

Especially designed for use in the Chemical Industry, these new Roura STAINLESS STEEL Self-Dumping Hoppers are simple to operate. They are ideal for quick, safe and economical handling of corrosive materials—whether wet or dry, hot or cold. Labor and Time costs can be cut 50%—only one man is needed for distributing and unloading—and he does this in much less time than ordinarily required under old-fashioned manual methods. Thousands of Roura Hoppers (which fit any standard fork or platform lift truck) are in constant daily operation, serving and saving for such firms as Ford, Champion Porcelain, General Electric, National Carbon, International Harvester, etc.

By a simple lift of the exclusive release handle the ROURA HOPPER dumps, rights, and locks itself securely. Sizes— $\frac{1}{2}$, $\frac{3}{4}$, 1, $1\frac{1}{2}$ and 2 cubic yards; the ROURA HOPPER can also be designed for flat trucks and in other sizes to meet specifications. Also, it can be equipped with special flanges that permit stacking to desired tiers for storage or future distribution of materials—conserving valuable floor space. Priced below all competition, the ROURA will quickly pay for itself many times over.

Write today for detailed brochure, "You Can Save 50% Labor-Time."

ROURA IRON WORKS, Inc.
1413 Woodland Ave. Detroit 11, Mich.

When inquiring check CP 1771 on handy form, pgs. 2-3

NEW LITERATURE

Bulletin describes hydraulic drives

Latest developments in company's line of hydraulic drives are discussed in 16-page bulletin. The history of hydraulic power transmission is briefly traced, followed by a profusely illustrated series of applications and descriptions of drives. Line includes models for start-stop conditions; models for maintaining constant tension and lineal speed in winding operations; and models providing complete disconnect between motor and load without use of a clutch.

Descriptive bulletin "Production Road" is issued by Twin Disc Clutch Company, Dept. CP, Racine, Wis. When inquiring specify CP 1772 on handy form, pages 2 and 3.

Water hardness test in 1 minute

Rapid, simple, and accurate, tests for determining the degree of water hardness are described in 4-page, illustrated bulletin. Tests may be employed to determine total water hardness; hardness due to calcium alone; or hardness due to magnesium alone. Tests take about 1 minute, give accuracy to within 1 ppm. By using a large sample and a diluted titrating solution, sensitivity can be increased to 0.1-0.2 ppm when desired.

Procedures, reagents, and equipment for these tests are pictured and described. Bulletin 1RE50 is issued by Hall Laboratories, Inc., Dept. CP, Hagan Building, Pittsburgh 30, Pa. When inquiring specify CP 1773 on handy form, pages 2 and 3.

Properties and applications of induction motors listed

Two-page bulletin describes line of wound-rotor induction motors. Contents include complete construction, assembly, and application data. Motors are specially useful for applications requiring 1) adjustable speed; 2) limited inrush current with high starting torque; and 3) smooth acceleration and deceleration. Typical applications are on large fans, centrifugal pumps, ball and hammer mills, hoists, and conveyors.

Motors are available for all voltages up to 4600 in standard and above-standard frequencies. Styles are splash-proof, totally enclosed, fan-cooled, with brakes, horizontal or vertical mountings, and with all types of face or flange. Descriptive Bulletin B 301 is issued by Star-Kimble Electric Company, Dept. CP, 200 Bloomfield Ave., Bloomfield, N. J. When inquiring specify CP 1774 on handy form, pages 2 and 3.

Steam or hot water systems operate unit heaters

Installation and operation features of unit heater line are described and illustrated in 16-page, 2-color file measuring $8\frac{1}{2} \times 11$ ". Models are for either horizontal or down flow delivery of air and can be used on either steam or hot water heating systems.

File gives thorough presentation of good practices in selecting size and type of heaters. It presents an operating quietness-level table and lists the basic steam and hot water capacities of all units. Output tables are given for steam pressures other than normal and for varying hot water flows and temperatures. Other pages review com-

the VACUUM PUMP that has NO MOVING PARTS

The steam jet type of vacuum pump has continually gained in favor for high vacuum in industrial process work. The total absence of moving parts is a big advantage and means many years of service, with no maintenance cost unless corrosive vapors are present. Available in single and multi-stage units for vacuum from a few inches down to a small fraction of 1 mm. Hg. absolute.

Many stills, dryers, evaporators, crystallizers and other processing vessels are operating at vacua limited by the vapor pressure of the condensate. This means on the average an absolute pressure of about 2.0" Hg. It is often practical and economical to put a Booster Evaporator in the line between the vessel and the condenser and maintain an absolute pressure of 0.5", 0.25" or even lower. The benefits of this higher vacuum in improving quality and capacity are very substantial.

Croll-Reynolds have been manufacturing this type of equipment for over 30 years and have made thousands of separate installations. Their engineers have extensive experience in applying it to numerous different processes. A catalog describing Croll-Reynolds equipment and service is available for the asking.



CROLL-REYNOLDS CO., INC.

17 JOHN STREET, NEW YORK 7, N. Y.

Chill-Vectors

Steam Jet Evaporators

Condensing Equipment

When inquiring check CP 1775 on handy form, pgs. 2-3

SIMPLE AS A.B.C.

It is the simplest engineering axiom that . . . the fewer the parts the less the friction and wear . . . the longer the life. The Viking Rotary Pump has

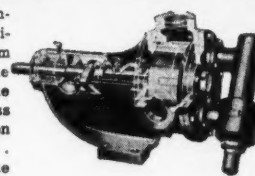


FIG. 124

"Just Two Moving Parts" . . . the simplest possible design for a pump. Little wonder they require so little power . . . need so few repairs . . . and last so long. Little wonder, too . . . why they are chosen so universally for handling chemicals and processing liquids. Write for Special free Bulletin 50SCC today. No obligation, of course.

See Our CATALOG IN SWEETS

VIKING PUMP CO.
CEDAR FALLS, IOWA

When inquiring check CP 1776 on handy form, pgs. 2-3

...You Get Exclusive Extra-Wear Features in

New Heavy-Duty

PIONEER STANZOIL®

BLACK NEOPRENE

Coated Canvas Gloves

Exclusive PIONEER Non-Slip Grip
Holds wet things as if dry.

Curved Fingers
Extra comfort and efficiency.

Preflex Palm Design
Prevents wear from bunching.

Inserted Thumb Design
No inside seam to wear through quickly.

Heavy Black Neoprene Coating
Liquid resistant, durable.

Glove is full weight 8 oz. cotton flannel
Comfort, long wear.

Those six features mean far more glove service for your money. Heavy-Duty STANZOILS not only wear and wear on heavy-duty jobs, but give real hand protection, extra resistance to oils and acids. And they enable workers to do more work with less effort. Write today for information and prices on this line of Heavy-Duty STANZOIL DuPont neoprene coated canvas gloves. *The Pioneer Rubber Company, 641 Tiffin Road, Willard, Ohio.*



OVER 30 Years of QUALITY GLOVE MAKING

When inquiring check CP 1777 on handy form, pgs. 2-3

"NATIONAL"

Two-Truck TRAY DRYER

Designed to Assure Efficient High-Speed Production Under Critical Drying Conditions

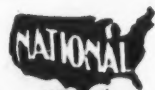
One of many sizes and capacities of truck tray dryers engineered by "National" to meet exacting requirements in the drying of chemicals, pharmaceuticals and other products in batch form.

Wide flexibility in operation and control permits future adjustment to changing needs. Can be arranged for cross or vertical circulation. Patented features assure maximum effectiveness of the drying medium, at the lowest possible cost per pound of material dried.

Generally furnished in aluminum panel and duct construction, but can be built with any metal required by specific conditions.

Write for Complete Information

Chemical Dryers of All Types and Sizes



Special Drying and Heating Equipment

THE NATIONAL DRYING MACHINERY CO.
2709 N. Hancock Street, Philadelphia 33, Pa.

When inquiring check CP 1778 on handy form, pgs. 2-3

NEW LITERATURE

ponent parts of heaters: cabinets, louvers, hangers, cores, fins, fans, and motors.

Engineering data are presented on mounting heights and floor spread diameter of air flow. Complete roughing-in dimensions and typical wiring diagrams of various types of controls are shown. Piping diagrams as well as installation and maintenance instructions are also included. File 30C-43 is issued by The National Radiator Co., Dept. CP, Johnstown, Pa. When inquiring specify CP 1779 on handy form, pages 2 and 3.

Pressure-temperature ratings for valves, fittings, flanges

Featured in 12-page company publication is a table giving pressure-temperature ratings for steel valves, pipe flanges, and flanged fittings. Table is compactly arranged for filing and for use under glass desk tops. Ratings are used as standard by the ASME Boiler Code Committee, the ASME Code for Pressure Piping, and most API divisions.

Also included in publication is an interesting article describing testing techniques used in valve design. "Valve Values", Vol. 10, No. 35, is issued by Edward Valves, Inc., Dept. CP, East Chicago, Ind. When inquiring specify CP 1780 on handy form, pages 2 and 3.

Pneumatic information given by handy calculator

Selection of air cylinders is simplified by use of slide rule type pneumatic calculator. By setting slide against known factors, many unknown factors can be instantly read from scale including gauge pressure, piston force, compression ratio, cubic feet of free air required per stroke, length of stroke, cycles per minute, seconds per stroke, cfm of free air, and friction correction factors.

Data on maker's line of cylinders, piston area, compressor horsepower required, and pressure drops through pipe and fittings are also contained in calculator. "Air Cylinder Selector" is issued by Hanna Engineering Works, Dept. CP, 1765 N. Elston Ave., Chicago 22, Ill. When inquiring specify CP 1781 on handy form, pages 2 and 3.

Tells how to bargain with labor unions

Practical working reference gives employers and management negotiators inside information on how to execute contracts that promote peaceful labor relations and at the same time permit efficient business operations.

Its 198 pages are divided into 5 sections: 1) why unions act as they do; 2) union management relations and the law; 3) basic union aims and management bargaining strategy; 4) safeguarding management rights; and 5) conduct at the bargaining table.

In these sections are actual specimen clauses used by companies in their labor agreements, including pointers on how to select the right clause to fit particular agreements. Appendix gives text of the Taft-Hartley Act, as well as tips on how to avoid legal difficulties.

To obtain "Management Strategy in Collective Bargaining Negotiations" remit \$5 direct to National Foremen's Institute, Inc., Dept. CP, New London, Conn. When inquiring specify CP 1782 on handy form, pages 2 & 3.



Every part corrosion-resistant to save you money! This fully-exploded view shows how the Ampco Pump is designed and constructed. All sizes are available in pedestal or close-coupled types.

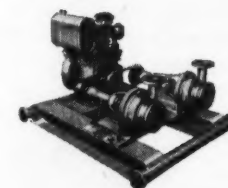
Ampco Pumps give maximum efficiency plus 5 extra features ... at no extra cost!

Ampco Pumps resist corrosion, erosion, and cavitation without loss of efficiency.

Ampco Pumps are designed for high efficiency — and maintain it because they are made of correctly mated Ampco alloys. These alloys hold wear to an absolute minimum; they have a natural resistance to the destructive action of corrosion, erosion, and cavitation.

Here are five "plus" features usually found only in special pumps. They add \$50.00 or more to the price you pay (when you can get them) — and lengthen delivery by weeks. Yet you get them in the rugged Ampco Pump — all for a standard pump price.

1. **Corrosion-resistant impeller and casing** — made of Ampco (aluminum bronze) alloy with an average tensile strength of 75,000 p.s.i., Brinell 125 (3000 kg.).
2. **Corrosion-resistant shaft** — made of Ampco (aluminum bronze) alloy with a fatigue life of 100,000,000 cycles at 37,000 p.s.i., yield 65,000 p.s.i., elongation 17% in 2".
3. **Hard, corrosion-resistant sleeve** (with special, selected packing) — made of Ampco (aluminum bronze) alloy with an average tensile of 85,000 p.s.i., Brinell 351 (3000 kg.).
4. **Wear and corrosion-resistant wearing rings** — made of Ampco (aluminum bronze) alloy properly mated with impeller to insure maximum wear and corrosion-resistance with yield strength of 38,000 p.s.i., 20% elongation in 2".
5. **Frame or adapter** made of Ampco (aluminum bronze) alloy to insure complete corrosion-resistance of the entire unit.



Special Pumps — twin Ampco centrifugal pumps powered by a gasoline engine — for oil-field service.

Save — both on initial cost and replacement costs. Insist on Ampco Pumps. Tested and approved in petroleum, chemical and food processing industries, and in breweries. Get complete information — today.

Ampco Metal, Inc.
Milwaukee 4, Wisconsin



West of the Rockies, it's the Ampco West Coast Plant, Burbank, Calif.

Ampco Metal, Inc.

Dept. CP-12 Milwaukee 4, Wisconsin

Send me Bulletin 85 on Ampco Centrifugal Pumps

FREE

Bulletin on Ampco Centrifugal Pumps. Tear out this coupon and mail today.

P-2A

Name

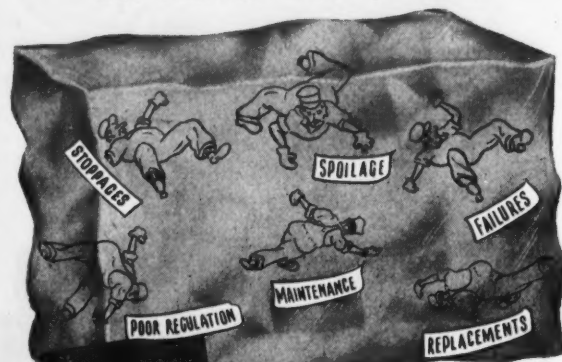
Company

Address

City () State

When inquiring check CP 1783 on handy form, pgs. 2-3

Put these **TROUBLEMAKERS** On Ice in Your Plant



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BULLETIN 962
ON THE

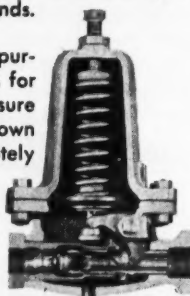
CASH STANDARD TYPE
Streamlined 1000
PRESSURE
REDUCING VALVE

AND SEE WHY YOU CAN DO IT

A USER SAYS: "We have had many expensive pilot operated steam pressure regulating valves for our process work which require a tapering steam flow down to practically zero consumption. The normal pressure reduction is 180# to 20#. The smallest of these valves that we could buy, would wire-draw in a short time and give no regulation at our low-flow demands."

A couple of years ago, we began to purchase CASH STANDARD 1000 valves for this service. We now have exact pressure regulation at all steam flow rates down to dead shuf-off and have had absolutely no occasion to service these valves.

We now intend to purchase these Streamliners for our heating steam lines where there is a wide range of thru-put, with long periods of practically no flow."



Maximum Capacity When Needed Most • Accurate Pressure Control Under Toughest Working Conditions • Trouble-Free Service • Smooth Operation • Tight Closure • Accurate Regulation • Speedier Production Results • Elimination of Failures • Constant Delivery Pressure • Cost Saving Operation • No Spoilage • Practically Zero in Maintenance Costs.

CASH STANDARD
CONTROLS...
VALVES

A. W. CASH COMPANY
DECATUR, ILLINOIS

When inquiring check CP 1784 on handy form, pgs. 2-3

NEW LITERATURE

Concentrated caustic soda costs less to ship

Six-page report deals with the advantages of purchasing high-concentration caustic soda and diluting it immediately during unloading, thus saving freight costs by shipment of less water as well as by reduction of "spotting", switching, demurrage, and unloading costs. Special meter design, piping arrangements, dilution calculations, and pump layouts are discussed in detail.

Other topics developed include meter banks for economical pumping, uses of caustic soda, and control instruments used in maintaining pH. "Economic Handling of Caustic Soda with Variable-Area Flow Meters" is issued by Fischer & Porter Company, Dept. CP, Hatboro, Pa. When inquiring specify CP 1785 on handy form, pages 2 and 3.

Hose couplings and fittings described and pictured

Twelve-page catalog section describes line of hose couplings and fittings. Products include: common couplings, short or long shank; combination, pipe, inserted, and built-on nipples; suction hose couplings; interlocking high pressure couplings; hydraulic hose couplings; hose adapter unions; fire hose couplings; flanges; clamps; and hose menders.

Illustrations and details of each type are given, with specifications, general and maximum pressure recommendations, and a description of threads. Catalog Section 3100 is issued by The B. F. Goodrich Company, Dept. CP, Akron, O. When inquiring specify CP 1786 on handy form, pages 2 and 3.

Report describes research in gas purification

Synthesis gas, used in the production of liquid fuels and certain chemicals such as ammonia, alcohols, and methane, must be free of impurities. Progress made in the search for an effective, low-cost way of removing the sulfur from this gas is described in government publication.

Included in the report are tentative conclusions reached thus far, and numerous tables, graphs, and illustrations showing methods used and results obtained in various tests and experiments. Report Investigations 4699 may be obtained without cost from the Bureau of Mines, Publications Distribution Section, 4800 Forbes St., Pittsburgh 13, Pa.

Measures density of flowing liquids

Eight-page bulletin describes and illustrates a constant-volume, variable-weight densimeter for continuous measurement and control of liquid density. Instrument has use in blending, mixing, separation, dilution, or concentration of industrial process liquids, either still or flowing. Specific applications include make-up of mercerizing caustics and brine solutions, mixing of rayon spin bath acids, recovery of acetone, and analysis of 2 component solutions or mixtures.

Densimeter consists of a totally submerged plummet fastened by chain to fixed reference point. Plummet is so weighted that at the middle of its indicating range it will assume an equilibrium position where weight of chain is equally supported by plummet and reference point. As density in-

BLACKMER PUMPS

for efficiency in
LIQUID MATERIAL HANDLING



Choose Blackmer, the world's longest line of Rotary Hand Pumps. Available complete for underground or surface tanks, barrels, bulk head mounting, with locking device, with meter, in iron or bronze, for volatile or viscous fluids. NEW vane designs provide service for MORE industrial liquids up to 1500 G.P.M. in Blackmer Rotary Power Pumps.

Get the "FACTS"

Blackmer Pumps

Blackmer Pump Company
Grand Rapids 9, Michigan

Write for a copy!



When inquiring check CP 1787 on handy form, pgs. 2-3

ALLMETAL'S
First Quality
STAINLESS STEEL FASTENERS

Help You Combat Corrosion!

All types and sizes of stainless fasteners—machine, set, self-tapping, wood screws, nuts, bolts, pins, washers, rivets stocked for immediate shipment. Prompt delivery on various types of Phillips Recessed Head Screws and specials, too.—Priced right!

Write for catalog 49U



MANUFACTURERS SINCE 1929
ALLMETAL
Screw Products Co.
33 GREENE STREET, NEW YORK 13, N. Y.

When inquiring check CP 1788 on handy form, pgs. 2-3

NEW LITERATURE

creases, the added buoyancy of plummet causes it to rise; as plummet rises, chain weight is transferred to it from reference point until new position of equilibrium is reached. These changes in position are translated through plummet core and electrical position measuring devices into a chart or scale indication.

Accuracy is $\pm 3\%$ of range or 0.0002 density, whichever is greater. Sensitivity is $\pm 0.5\%$ of range. Temperature limit is 500°C, and pressure limit is 125 psi in glass models and 500 psi in metal models. Instrument handles viscosities to 2000 centipoises. It is available for 110 or 220 volt, 25, 50, or 60 cycle operation.

Illustrations, further specifications, and dimensions are contained in Bulletin W-2, issued by Precision Thermometer & Instrument Co., Dept. CP, 1434 Brandywine St., Philadelphia 30, Pa. When inquiring specify CP 1789 on handy form, pages 2 and 3.

Shows importance of water in process operations

Water supply is of utmost importance in many industries and processes, 12-page bulletin points out. For example, it takes 830 tons of water to make 1 ton of rayon; 400 tons for each ton of paper pulp; 130 tons for each ton of synthetic ammonia; and 15 tons for each ton of gasoline. Specific water problems of all kinds — procurement, treatment, usage, and disposal — and the facilities and services offered in coping with them are described and charted. "Your Most Important Raw Material" is issued by Hall Laboratories, Inc., Dept. CP, Hagan Bldg., Pittsburgh, Pa. When inquiring specify CP 1790 on handy form, pages 2 and 3.

How to machine alloy of aluminum bronze

Ampco Metal (alloy of aluminum bronze) is readily machinable, 12-page bulletin warns, but special techniques must be used in some cases. Action of tools on this alloy differs greatly from action on lead alloys.

Bulletin covers recommended practices for turning, boring, forming, grooving, finishing, grinding, honing, polishing, milling, broaching, sawing, drilling, reaming, and tapping all grades of this alloy. Added section treats tool design and metal inspecting procedure.

Bulletin 66a is issued by Ampco Metal, Inc., Dept. CP, Milwaukee 46, Wis. When inquiring specify CP 1791 on handy form, pages 2 and 3.

Bulletin specifies fatty acids

Line of solid fatty acids is fully described in 10-page bulletin. Given are specifications; characteristics such as stability, composition, and uniformity; uses and methods of processing; and packaging.

Fatty acids find applications in saponification, chemical synthesis, and compounding. Maker reports excellent stability in color, odor, and oxidation for his products. Described are stearic acid, palmitic acid, and several hydrogenated tallow and fish fatty acids and glycerides.

"Solid Fatty Acids" is issued by Emery Industries, Inc., Dept. CP, Carew Tower, Cincinnati 2, O. When inquiring specify CP 1792 on handy form, pages 2 and 3.

For troublesome connections . . .

on a tank car . . .

on a compressor . . .

on dewaxing filters . . .

CMH

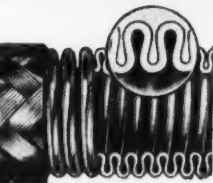
FLEXIBLE METAL HOSE

offers the economical,
dependable solution

Scores of troublesome connection problems where there is movement between parts, misalignment, vibration or expansion and contraction are effectively solved with CMH Flexible Metal Hose. Manufactured in a variety of types and a variety of metals, CMH Flexible Metal Hose is available for pressures from vacuum to 12,000 psi (burst) and for temperatures from sub zero to 1600° F.

If you do not already have literature describing the CMH line of flexible metal hose products, write for it, today, mentioning the types of connection problems you have.

CMH corrugated metal hose is manufactured in steel, bronze, stainless steel and other alloys and is available with or without metal braid covering. Convolute hose, conduits, expansion joints, bellows and specialty items are also included in the CMH line.



Flexon identifies CMH products that have served industry for over 48 years.



CHICAGO METAL HOSE Corporation

1319 S. Third Avenue • Maywood, Illinois • Plants at Maywood, Elgin and Rock Falls, Ill.
In Canada: Canadian Metal Hose Co., Ltd., Brampton, Ont.

CMH

ONE DEPENDABLE SOURCE

for every flexible metal hose requirement

Convolute and Corrugated Flexible Metal Hose in a Variety of Metals • Expansion Joints for Piping Systems
Stainless Steel and Brass Bellows • Flexible Metal Conduit and Armor • Assemblies of These Components

When inquiring check CP 1793 on handy form, pgs. 2-3

*Fitted for
Every Job Need*



DIPPED NEOPRENE INDUSTRIAL GLOVES

SAFE—They can help prevent costly accidents. The rough-surface fingers assure positive, easy gripping. And Neoprene withstands gasolines, oils, greases and corrosive chemicals.

COMFORTABLE—The curved finger construction conforms to the natural curve of hand—eliminates straining and pulling. Highly flexible, they permit easy, natural working motions.

ECONOMICAL—They are built for long wear and tough service. Full range of sizes, lengths and weights. U. S. technical men will be glad to analyze your glove needs and recommend the correct glove for each of your jobs. Available from your nearest United States Rubber Company Branch.

U. S. INDUSTRIAL GLOVES

UNITED STATES RUBBER COMPANY

When inquiring check CP 1794 on handy form, pgs. 2-3

Page 90

NEW LITERATURE

Evaluates resistance of surfaces to rubbing abrasion

Abrader described in 6-page bulletin is a durable test instrument designed to evaluate the resistance of surfaces to rubbing abrasion. Its range of application includes tests of painted, lacquered, or electroplated surfaces, plastic coated materials, and light or heavy fabrics.

Two sets of stainless steel weights are provided, which, in addition to the abrading arm itself, provide 3 standard ranges of wheel pressures against the specimen. Abrading wheels of various types, designed to simulate different kinds of abrasion, are available. A variety of holders for different types of materials are also available, including a rimmed model that can be partially filled with a liquid to wet the specimen by absorption, or completely submerge it.

Bulletin 5003 is issued by Taber Instrument Corporation, Dept. CP, 106 Goundry St., North Tonawanda, N. Y. When inquiring specify CP 1795 on handy form, pages 2 and 3.

Versatile pressure regulator also serves as governor

Concise 2-page bulletin gives full description and specifications on line of pressure regulators that can also serve as pump governors. Regulators work on steam, air, and water lines carrying pressures to 200 psi; they are especially suited to installations where close regulation of pilot operated valve is not necessary. Bulletin 102 is issued by The C. E. Squires Company, Dept. CP, 18502 Syracuse Ave., Cleveland 10, O. When inquiring specify CP 1796 on handy form, pages 2 and 3.

Feeders deliver dry chemicals at rates from 1-5000 lb/hr

Twelve-page bulletin describes 3 sizes of feeders that deliver from 1 to 5000 lb/hr. Feeders are designed to handle any dry chemical or other material, regardless of particle size.

Contents include dimensions, specifications, discussion of features, and data on computing dissolving chamber capacities. Diagrams show how automatic proportional control may be obtained. Photographs show typical arrangements and installation of equipment.

Bulletin 20-G14 is issued by Omega Machine Company, Dept. CP, Providence 1, R. I. When inquiring specify CP 1797 on handy form, pages 2 and 3.

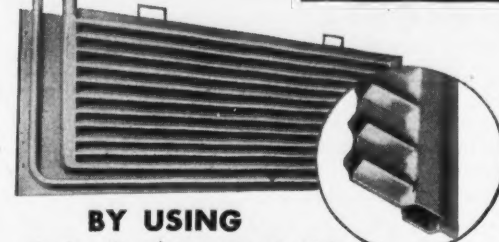
NBS presents compilation of nuclear data

Nuclear data compiled by NBS is presented in 310-page circular which is to be followed at 6-month intervals by series of three 60-page supplements. Supplements will give new data, current changes, etc., thus keeping information up-to-date.

Tables will present a comprehensive collection of experimental values of half-lives, radiation energies, relative isotopic abundances, nuclear moments, cross sections, decay schemes, and level diagrams.

Degree of uniformity of results will tell which nuclear constants now appear fairly certain and which are still quite doubtful. References to over 2000 original papers make it possible for the research worker to evaluate de-

YOU SAVE STEEL MANHOURS MONEY



BY USING PLATECOIL FOR TANK HEATING AND COOLING

YOU SAVE CRITICAL STEEL because "Platecoils" require less than 1/2 the steel used in pipe coils of the same surface area. A 22" x 119" Platecoil weighs 95 lbs. against 239 lbs. for an equivalent 2" pipe coil. 144 lbs. steel saved. **YOU SAVE CRITICAL MANHOURS** because "Platecoils" are easily installed, cleaned or replaced in minutes . . . No down-time . . . No tank dumping. Many manhours saved. **YOU SAVE MONEY** because "Platecoils" cost up to 50% less in initial cost and require less maintenance. Investigate "Platecoils" today.

Send for complete technical manual and descriptive Bulletin No. P54

PLATECOIL
DIVISION
KOLD-HOLD MFG. CO.
LANSING 4, MICHIGAN

When inquiring check CP 1798 on handy form, pgs. 2-3

Edward PRESENTS

New ALL-PURPOSE STEEL VALVES

A new all-purpose valve series, ideal for almost any service where small O. S. & Y. steel valves are used.

Drop forged steel for greatest strength . . . simplest packing arrangement . . . tight, easily accessible union or bolted bonnet joints . . . bronze yoke bushings . . . microscopically mated seats and disks . . . lock welded parts. Built in sizes 1/4 to 2 in. inclusive, globe or angle, screwed or socket welding ends, carbon or chromium molybdenum steels, in 600 or 1500 lb. classes. Stocks now available.

Bolted bonnet 1-1/4 in. up 600 lb, 1 in. up 1500 lb. Union bonnet in smaller sizes.

For full details, dimensions, illustrations write today for your free copy of . . . **BULLETIN 501**

Edward Valves, Inc.
SUBSIDIARY OF ROCKWELL MANUFACTURING COMPANY
EAST CHICAGO, INDIANA

When inquiring check CP 1799 on handy form, pgs. 2-3

CHEMICAL PROCESSING

NEW LITERATURE

tails of previous investigations and thus design experiments to resolve existing discrepancies.

To obtain Circular 499, "Nuclear Data", remit \$4.25 direct to Superintendent of Documents, U. S. Government Printing Office, Washington 25, D. C. This price includes the 3 supplements, which will be mailed automatically.

Many pictures featured in condenser bulletin

Numerous photographs of steam condensers are featured in 23-page bulletin. Company manufactures condensers of all types — single- and multi-pass, divided and non-divided flow — for engines, turbines, power plants, and water works.

Bulletin is divided into 5 sections. First section consists largely of condenser installations. Second section covers engineering data, principles, and formulas. Third section treats air removal equipment for condensers. Fourth section is concerned with maintenance, while fifth section includes such condenser specialties as port glasses, erosion eliminators, tube testers, and plugs.

Bulletin 102 is issued by Condenser Service and Engineering Co., Inc., Dept. CP, Seaboard Trust Bldg., Hoboken, N. J. When inquiring specify CP 1800 on handy form, pages 2 and 3.

Specifies hammer mills

Four-page, 2-color bulletin offers illustrations and short descriptions of hammer mills of various types. Specifications and uses are included. Bulletin H-5 is issued by The Bauer Bros. Co., Dept. CP, 1719 Sheridan Ave., Springfield, O. When inquiring specify CP 1801 on handy form, pages 2 and 3.

Conveyors and small trucks are presented in catalog

Material handling equipment is described and illustrated in 24-page, 2-color catalog. Fully-indexed contents consist of applications, construction features, and specification charts. Gravity conveyors, powered conveyors, and hand and platform trucks are treated in catalog's 3 separate sections.

"Material Flow Equipment" is issued by Dept. GC-51, The Rapids-Standard Company, Inc., Dept. CP, 342 Rapistan Bldg., Grand Rapids 2, Mich. When inquiring specify CP 1802 on handy form, pages 2 and 3.

Hardfacing alloys specified

Twenty-page, illustrated catalog contains detailed information on complete line of hardfacing alloys. Description of product, typical uses, mechanical properties, chemical analyses, and brief outline of recommended procedures are included. Data is supplemented by such allied information as a tabulation of recommended grinding wheels for dressing deposits of these alloys.

Catalog on hardfacing alloys is issued by Air Reduction Sales Co., Division of Air Reduction Company, Inc., Dept. CP, 60 E. 42nd St., New York 17, N.Y. When inquiring specify CP 1803 on handy form, pages 2 and 3.

HIGH DISCHARGE PRESSURES PLUS ANTI-FRICTION CONSTRUCTION

AVAILABLE
IN A SINGLE STAGE
IN ROTH

TURBINE TYPE PUMPS

Roth Turbine Type pumps fill a need between conventional centrifugal and rotary designs . . . combining the high discharge pressures of rotary pumps with the friction free operation of centrifugals. Capacities range from one to 200 gpm, heads range to 500 feet.

APPROXIMATE SELECTION because of their wide operating range, makes Roth Turbine Type pumps most practical for applications where head conditions cannot be accurately determined in advance or are subject to variation.

RECOMMENDED APPLICATIONS include the food and chemical industries where the ability to pump from vacuum at 29½ inches with only three feet suction head offers installation economies not possible with other types of equipment. For the heating engineer who must pump water at near boiling point, the self-venting, vapor clearing characteristics plus the high discharge head in a single stage make Roth pumps essential for boilers up to 750 HP. For the petroleum industry, these same advantages become increasingly important with the increased use of LPG. Cooling towers, water treatment equipment, filter presses, centrifugal

separators, steam generators and water systems are among other recommended applications.

SPECIAL METALS for the chemical and food industries are available for quick delivery. 18-8 and 316 stainless pumps are stocked in many sizes while Hastelloy, special bronzes, illium, or ni-resist pumps can be made to order. The simplicity of design of the liquid end lends itself to construction in special metals quite readily.

CONSTRUCTION FEATURES include positive location of the impeller which eliminates metal-to-metal contact, accomplished with a combination of bearing pre-loading spring, sealed ball bearings and a particularly rugged stainless shaft. Packing maintenance is reduced since Roth pumps have only a single box. Easy access to the liquid end is provided by mounting both ball bearings on one side of the impeller. The outboard head and the impeller may be removed without disconnecting piping or disturbing pump and motor location.

YOUR ROTH DISTRIBUTOR is prepared to furnish details and recommendations on the Roth Turbine Type pump to suit your installation. Contact him today!

Illustrated: A Series 3 pump from the Roth line, one of 62 models each providing a different range of capacities and heads.

SALES & SERVICE IN THESE PRINCIPAL CITIES:

AKRON—Hemlock 4181
B. W. Rogers Company
850 South High Street
ALBANY—5-4844
Peck Pump & Equipment Co.
131 Hudson Avenue
ATLANTA—Main 7878
John L. Underwood Co., Inc.
555 Whitehall Street S.W.
BOSTON—LAFayette 6172-3-4
Berg-DiMare & Berg, Inc.
87-93 Haverhill Street
CHICAGO—Central 6-3958
Lowden and Company
540 West Lake Street

CLEVELAND—Express 7828
Wm. Berrington & Son, Inc.
4821 Superior Avenue
DALLAS—Justin 8-1120
Lone Star Pump & Machinery
5306 Harry Hines Blvd.
DENVER—Dexter 8151
Harry J. Glass & Associates
P. O. Box 1085
DETROIT—Vermont 6-4689
Heating Equipment Company
14565 Glastonbury
INDIANAPOLIS—Lincoln 3463
Jackson Engineering Co.
934 Architect & Builders Bldg.

LOUISVILLE—Jackson 2716
Allan K. Cook
505 South Third Street
LOS ANGELES—Kimble 8189
Frederick Pump & Eng. Co.
5743 Duarte Street
MILWAUKEE—West 3-8433
Dodge Pump Company
446 North 29th Street
NEW YORK—Cortland 77652
Frank A. Kristal
30 Church Street
OKLAHOMA CITY—3-5315
Loeffler-Greene Supply Co.
1604 N. W. 5th

PHILADELPHIA—Stevenson 7-2300
Walter H. Egan Co.
2336 Fairmount Avenue
PITTSBURGH—Walnut 1-7704
Weinman Pump & Supply Co.
317 South Main Street
PORTLAND—Vermont 4173
Pump, Pipe & Power Co.
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SCRANTON—4-4933
Frank A. Phillips
328 Garfield Avenue
SYRACUSE—72-7480
Mesdon Engineering Service
151 Clarke Street

UNION, N.J.—Unionville 2-4046
J. L. Cunningham
370 Huntington Road
WICHITA—3-0416
Industrial Supply Co.
1852 N. Broadway
WICHITA—2-3484
J. M. O'Connor
208 North Waco
TORONTO—Laidbrook 3188
Bawden Machine Company
163 Sterling Road
WINNIPEG
J. R. Stephenson & Co.
838 Notre Dame Avenue

MEXICO, D. F.—Taller Electrico Diaz, Av. Morelos Num. 24

MEXICO, D. F.—Casa Gimbel S. A. de C. V., Av. Amsterdam No. 129

ROY E. ROTH CO. **ROTH** **PUMPS** 2474 Fourth Ave. ROCK ISLAND, ILL.

When inquiring check CP 1804 on handy form, pgs. 2-3



rolls this tube sheet in HALF THE TIME!

Tube rolling jobs like this go **TWICE AS FAST** with the new, improved AIRETOOL Tube Rolling Control. Even inexperienced operators roll tubes with uncanny accuracy and greatly increased speed.



MOBILE UNIT

8 IMPORTANT ADVANTAGES

- The original control calibration is permanent . . . needs no adjustment.
- Relay operation is accurate and free from chatter.
- Employs or needs no delicate electronic tubes.
- No voltage regulator necessary for regular power sources.
- Minimum number of moving parts to wear out.
- Control consumes minimum current . . . delivers maximum power to motor.
- Every Control individually calibrated and shop tested before delivery.
- Designed for field and maintenance shop work as well as for new work. Available as a mobile unit.

PROVED BEST in LAB...SHOP...FIELD

Test it . . . compare it. Results prove that the AIRETOOL control is the best obtainable at any price. Cash in on these benefits now. Write the AIRETOOL Manufacturing Co., 331 S. Center St., Springfield, Ohio.

THERE'S AN AIRETOOL TUBE CLEANER AND TUBE EXPANDER FOR EVERY TYPE OF TUBULAR CONSTRUCTION



BRANCH OFFICES: New York, Philadelphia, Chicago, Houston, Tulsa, Baton Rouge

When inquiring check 1805 on handy form, pgs. 2-3

NEW LITERATURE

Pumps handle volatile liquids, water, and light oils

Centrifugal pumps described in 8-page, 2-color bulletin are for applications where self-priming service is desirable. Mechanical seal obviates conventional stuffing box. Design eliminates valves. Sufficient liquid is retained in casing for repriming even though lines drain back to source. Water, volatile liquids, and light oils can be handled.

These pumps are made in sizes ranging from 1/4 to 5 hp with either open or closed impellers, capacities to 120 gpm, and heads to 135'. They can handle suction lifts up to 25'. Bulletin 636.1 is issued by Goulds Pumps, Inc., Dept. CP, Seneca Falls, N. Y. When inquiring specify CP 1806 on handy form, pages 2 and 3.

Heat transfer medium used in vaporizers

Four-page, 2-color bulletin describes series of vaporizers using Dowtherm as heat transfer medium. Capacities range from 750,000 to 20,000,000 Btu/hr in these units, which have furnace volumes from 80 to 1580 cu ft. Sizes are from about 7 x 8 x 9' to 18 x 17 x 20'. Fuel is either oil or natural gas.

Vaporizer consists essentially of radiant type furnace enclosed on both sides by 2 banks of convection tubes. Upper ends of all radiant furnace tubes and of all tubes forming convection banks terminate in common vapor drum, while lower ends are expanded into 2 separate mud drums. Entire unit is enclosed in insulated setting, which is in turn protected by steel casing.

Bulletin 48-2 contains photographs, dimensioned drawing, and specification tables; it is issued by The Wickes Boiler Co., Dept. CP, Saginaw, Mich. When inquiring specify CP 1807 on handy form, pages 2 and 3.

All-neoprene construction featured in conveyor belt

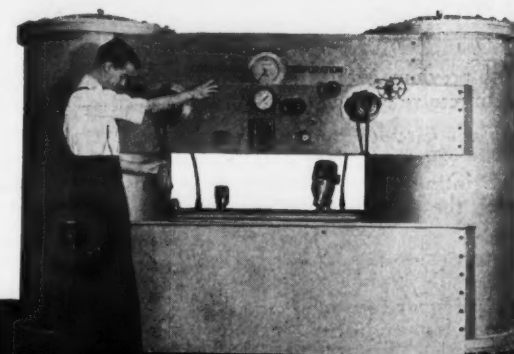
All-neoprene belting for light conveying and transmission service is described in 2-page sheet. Information given includes complete details of application and construction, as well as table of technical specifications. "Supertex Belting" is issued by Baldwin Belting, Inc., Dept. CP, 74-76 Murray St., New York 7, N. Y. When inquiring specify CP 1808 on handy form, pages 2 & 3.

Gives temperature measurement, control principles

Basic principles of industrial temperature measurement and control are presented in 24-page, 2-color manual. This study defines different types of control systems and distinguishes between them so that the engineer can logically select the particular type most appropriate to his situation.

Manual untangles many prevalent confusions, devoting chapters to such subjects as the influence of firing system upon design of control system, the fundamental tenets of mercury-bulb installation, and the basic concepts of electrical and mechanical control theory. Among these concepts are: control circuit versus load circuit; one-point, two-point, and program control; two-wire, three-wire, and potentiometric control; two-position control; the use of diaphragm valves; and the reasons for the 3 different types of temperature-sensitive elements.

Typical circuits and piping diagrams, and ranges and cal-



A "PACKAGE UNIT" DEMINERALIZER

A self-contained demineralizer, complete with reaction tanks, chemical tanks, special piping and all necessary accessories. Only ordinary piping and electrical connections are required to complete installation. Operator can perform all operations and observe all results from a position in front of panel and chemical tanks are also charged from this position. All control valves and instruments are at eye-level. For details write COCHRANE CORPORATION, 3147 N. 17th St., Philadelphia 32, Pa.

COCHRANE

When inquiring check CP 1809 on handy form, pgs. 2-3

Smooth Vibrationless PROPELLERS

for MIXING, STIRRING
AERATING, PUMPING
AGITATION



A Michigan 34" Stainless Steel propeller with split hub for mounting in receptacle through manhole.

Manufactured by an exclusive process, Michigan propellers are perfectly balanced to avoid whip and strain on shafts. They are available for original equipment, replacement or special application in a wide range of materials and in sizes up to 60". Write for latest data folder.

MICHIGAN WHEEL CO. GRAND RAPIDS 3, MICHIGAN

When inquiring check CP 1810 on handy form, pgs. 2-3

NEW LITERATURE

ibrations of scales and dials are included. Result of 2 years' work, manual is liberally illustrated and highly organized for easy reference. Bulletin 101 is issued by The Partlow Corporation, Dept. CP, New Hartford, N.Y. When inquiring specify CP 1811 on handy form, pages 2 and 3.

Liquid at pressures to 1500 psi handled by control valves

Diaphragm control valves are described in 4-page bulletin. Valves are for liquid service at pressures to 1500 psi. They are available in cast iron, carbon and stainless steels, and most machinable alloys. Flow passages have minimum average area of 140% of comparable size pipe area; inner valve open free areas average 80% of pipe area.

Bulletin S10 contains specification tables and illustrations, and is issued by Kieley & Mueller, Dept. CP, 2033 43rd St., North Bergen, N. J. When inquiring specify CP 1812 on handy form, pages 2 and 3.

Shows how to reduce costs with pallets and trucks

Sixteen-page bulletin presents materials handling system employing hand and electrically operated pallet trucks for single or double faced pallets. Illustrations show how a wide variety of materials and products are moved, stored and shipped. Other advantages include saving of space, man-hours, and expense.

Hydraulic pallet trucks are illustrated and described in detail; loads to 4000 lb can be handled by these trucks. Complete specifications of the various units are given. Also shown are various types of pallets. Additional information includes how to properly load a freight car.

Bulletin P476 is issued by Barrett-Craven Co., Dept. CP, 4609 S. Western Blvd., Chicago 9, Ill. When inquiring specify CP 1813 on handy form, pages 2 and 3.

Process rebuilds and protects surfaces

Four-page bulletin describes metallizing process for making mechanical repairs and protecting surfaces from corrosion and contamination. "Metallizing" is issued by Metalweld, Inc., Dept. CP, 26th and Hunting Park Ave., Philadelphia 29, Pa. When inquiring specify CP 1814 on handy form, pages 2 and 3.

Gives data, shows equipment for heat and power plants

Permanently bound 160-page catalog and handbook details standard equipment used for automatic heat and automatic power installations. Book is divided into 3 major sections: 28 pages devoted to packaged steam generators, oil and gas burners, ranges, water heaters, bake ovens, and other heavy equipment; 98 pages of oil, gas, and miscellaneous accessories; and 34 pages of useful data for designers and installers of oil and gas fired heating, hot water, and power plants.

Heating and power equipment catalog and handbook is obtainable by direct remission of \$2.50 to Preferred Utilities Manufacturing Corporation, Dept. CP, 1860 Broadway, New York, N. Y. When inquiring specify CP 1815 on handy form, pages 2 and 3.

NOVEMBER, 1950

their LONG LIFE *makes* LAPP PORCELAIN RASCHIG RINGS the most economical tower packing you can buy

THE cost of packing for chemical towers must be based on original cost of the packing against length of service, plus labor cost for cleaning and repacking, and lost production time. Because they are stronger and smoother, Lapp Porcelain Raschig Rings last longer . . . they are the most economical ceramic rings you can buy.

STRONGER, NON-POROUS PORCELAIN. Lapp Raschig Rings are made of solid Lapp Chemical Porcelain, a dense, thoroughly vitrified, pure, iron-free ceramic material of zero porosity . . . permits no absorption of liquids so avoids disintegration and crumbling.

SMOOTHER SURFACE. Without benefit of glazing, Lapp Porcelain is hard and smooth, easy to clean—and stays clean longer.

Lapp Rings are available in $\frac{3}{8}$ ", $\frac{1}{2}$ ", $\frac{5}{8}$ ", $\frac{3}{4}$ ", 1", $1\frac{1}{4}$ ", $1\frac{1}{2}$ ", 2" and 3" sizes. Write for detailed description, prices, samples. Lapp Insulator Company, Inc., Process Equipment Div., 318 Maple St., Le Roy, N. Y.

Lapp

PROCESS EQUIPMENT

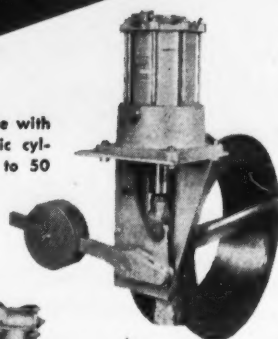
CHEMICAL PORCELAIN VALVES • PIPE • RASCHIG RINGS
PULSAFEEDER CHEMICAL PROPORTIONING PUMPS

When inquiring check CP 1816 on handy form, pgs. 2-3

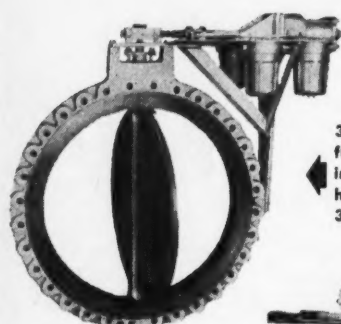
ROCKWELL VALVES

with Hydraulic Control for
Shut-Off and Throttling of Air—
Gases—Steam—Liquids
and Semi-Solids

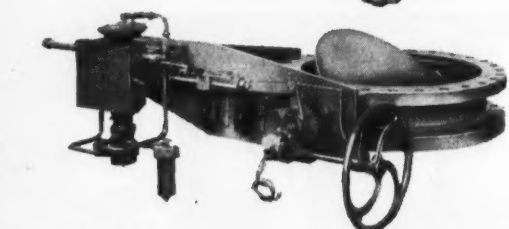
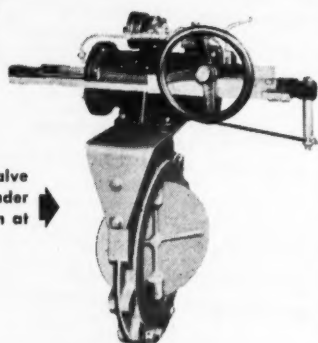
24" cast steel butterfly valve with
Hanna oil-operated hydraulic cyl-
inder for handling gas up to 50
p.s.i. at 250° F.



36" semi-steel wafer butterfly valve with hydraulic cyl-
inder and limit switches for
handling air at 25 p.s.i. and
300° F.



12" wafer type butterfly valve
with Hagan hydraulic cylinder
regulator for handling steam at
5 p.s.i. and 240° F.



30" stainless steel butterfly valve equipped with Republic Flow
Meters Co. hydraulic cylinder, pilot valves, pneumatic positioner,
Selsyn motor units and declutchable hand wheel; for handling
saturated air at 5 to 65 p.s.i.

These are but a few examples. Rockwell Valves are made
in butterfly and slide types—with any type of manual or
automatic control—in pipe sizes from 1" to 84"—for normal
or heavy duty pressure or temperature. Write for Catalog.

W. S. ROCKWELL COMPANY

220 Eliot St., Fairfield, Conn.

When inquiring check CP 1817 on handy form, pgs. 2-3

Page 94

Remove Fine-particle Dust, Soot from Air With Vertical Electronic Units

Save space in air conditioning,
heating and oil-mist collection
systems; 90% efficiency

USES: For removal of dust, dirt,
smoke, soot and other air-borne
solids from normal air. Finds typical
use in air conditioning systems, indus-
trial air cleaning and in oil-mist collec-
tion.

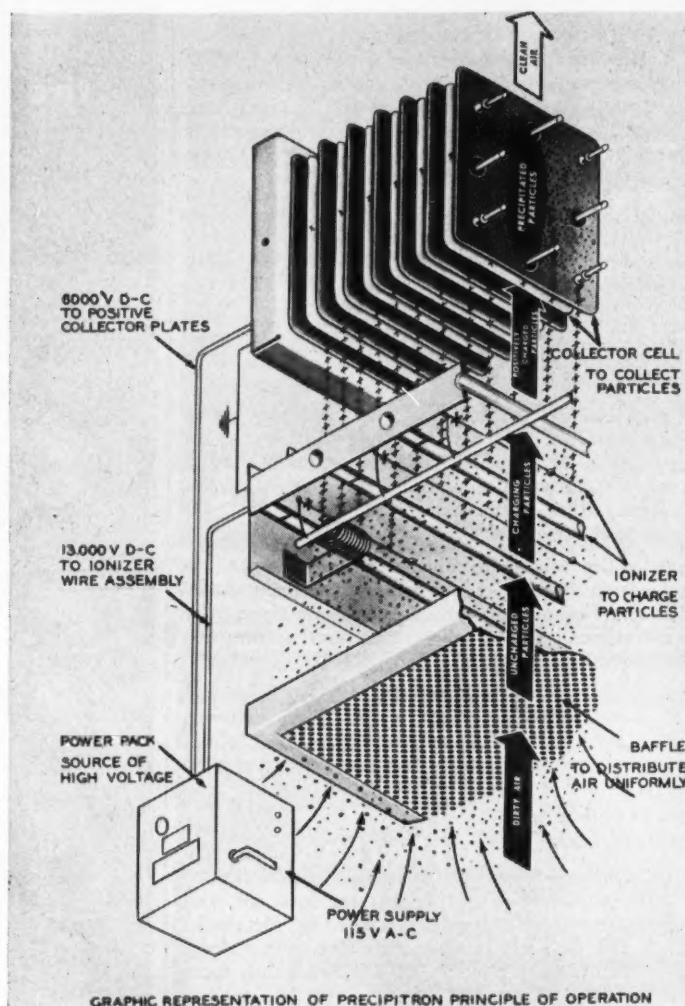
Features: Vertical air-flow, either
up or down. Mounting of unit in
vertical duct saves floor space. Com-
plements similar units for horizontal
air flow, providing a full choice of
equipment to meet specific require-
ments. Smallest air-borne particles,
traveling at 333 fpm, are removed with
an efficiency of 90%, according to U. S.
Bureau of Standards Blackness Test.

Construction features include use of
lightweight aluminum in all compo-
nents. Flexibility of design permits
arrangements in several combinations
to suit requirements. All operating
parts are removable and completely ac-
cessible for inspection and maintenance.

Description: Available in sizes for
capacity requirements from 1200 cfm
up. Large units will handle as much
as 9600 cfm. Frame serves as a support
for internal components as well as a
complete structural casing. Supplied
for either vertical up or down air flow.
Baffle, ionizer, collector cells, and me-
chanical filters (when required) slide
into position on guide rails welded
directly to the sides of the frame. Frame has bolt holes
punched in flanges on top and bottom so that complete
frame assembly can be bolted directly to duct. Frames
are built in 6 standard sizes, in nominal widths of 2, 3
and 4'. A wide range of units is available by combining
these basic sizes in various arrangements.

Smallest unit has projected floor area of approximately
4 sq. ft., largest 16 sq. ft. Units remove 90% of all
air-borne articles at 333 fpm; 85% at 400 fpm. Power
supply is 115 v., single phase, 50 or 60 cycles. For
positive protection against high voltages, a protective
switch is wired into the power supply circuit and actuated
by a time delay screw on the front panel or door. Power-
pack interior is entirely safe and devoid of all
high voltage when power-pack is open.

Upon immediate contact with grounded plates, particles
lose their charge and stick firmly to the plates by ag-



GRAPHIC REPRESENTATION OF PRECIPITRON PRINCIPLE OF OPERATION

View shows component parts, path of flow of air, charging
and precipitation of particles

glomeration. To insure adhesion, plates are coated with
an adhesive fluid which permits greater dirt-loading
capacity. Dust collector cells eventually attain their
dirt-holding capacity. Cleaning is then performed by
flushing the ionizer and collector cells with hot water
to remove dirt-laden adhesive and spraying a new coat-
ing of adhesive upon the plates in preparation for re-
suming operations.

Accessories include safety switches, warning and duct
lights, water spray nozzle, and high voltage warning
signs.

For oil-mist application, mechanical filters are supplied
instead of adhesive and applicator. These filters are also
available for use as a pre-cleaner or blow-off guard for

CHEMICAL PROCESSING

conventional atmospheric air cleaning applications.

Source: Westinghouse Electric Corp., Dept. CP, 305 Fourth Ave., Pittsburgh 30, Pa. . . or for more information check CP 1818 on handy form, pages 2 and 3.

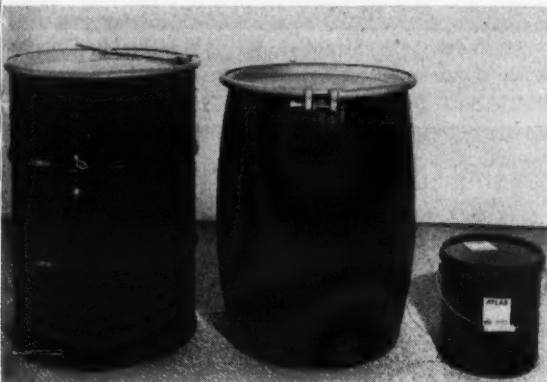
**Easily cleaned plastic lining
in steel drum resists crack-
ing though drum is dented . . .**

10-mil thick polyethylene lining withstands many acids, bases, etc.; container is relatively inexpensive

Uses: Polyethylene-lined full open head steel containers (drums, pails, etc.) in sizes from 5 to 55 gallons have been successfully tested with a variety of products, including muriatic acid, fluoboric acid, quaternary ammonium compounds, detergents, dye stuffs, sodium hypochlorite solutions, hydrofluoric acid, fatty acids, wetting agents, latex products, nitric acid, sodium hydroxide, ammonium hydroxide, sulphuric acid and other non-edible and edible products.

Features: Lining is approximately 10 mils in thickness; every unit is spark tested to insure freedom from porosity. Because of a new method of applying linings, containers are relatively low in cost in comparison to stainless steel, aluminum, and heavy gage metal drums, and butyl rubber, glass, and wooden drums or barrels.

Description: Lining thickness is sufficient to prevent trouble due to the rough weld on the seam of the drum. The nature of polyethylene prevents cracking, chipping or



Polyethylene-lined drums are used with sodium hypochlorite solutions; pail with a quaternary deodorant

peeling of the lining while in service, thus eliminating dangers common to more rigid phenolic and vinyl resin coatings. Tests have shown that the lining will take the contour lines of the drum if it is bent or damaged in transit. The chime has been eliminated to further prevent any chance of products coming in contact with metal. No additives are used in the application of the polyethylene to the container and only the highest molecular-weight polyethylene is used.

Because very few materials adhere to this plastic, containers can be reused without reconditioning the lining—merely wash the inside with hot water. It is said that the lining will last as long as the steel drum itself.

In tests using copper sulphate, water, and muriatic solutions, polyethylene coating did not show copper deposits even after 1344 hours; whereas, the same test conducted on phenolic and vinyl resin coatings revealed copper deposits after the plastics were in contact with the solution for 24 hours.

Source: Delaware Barrel Co., Inc., Dept. CP, Eden Park Gardens, Wilmington, Del. . . or for more information check CP 1819 on handy form, pages 2 and 3.

CORRECT SPECIFICATION is part of the picture

● This heat exchanger, fabricated by the Nooter Corporation, St. Louis, Mo., contains Revere Admiralty Metal Tubes. They were specified after a thorough study of operating conditions indicated that they would be the most satisfactory. Though Revere Admiralty Metal Tubes are generally considered to be acceptable under a relatively wide range of conditions, and are bought in such large quantities as to warrant the term "popular," they are by no means all-purpose tubes. In fact, there is no one tube alloy that can be called "best," because condenser and heat exchanger installations vary so greatly in their requirements.

In order to meet these differences, Revere does two things; it makes condenser tubes in a number of different alloys, and it collaborates with its customers, through the Revere Technical Advisory Service, in specifying the alloy most likely to meet individual service requirements.

Among the Revere Condenser Tube Alloys are: Admiralty Metal, Arsenical Copper, Muntz Metal, Aluminum Brass, Aluminum Bronze, Cupro-Nickel. Revere also supplies tube plates in a variety of alloys. If you have any questions regarding the selection of tubes or plates for condensers and heat exchangers, consult Revere.

REVERE

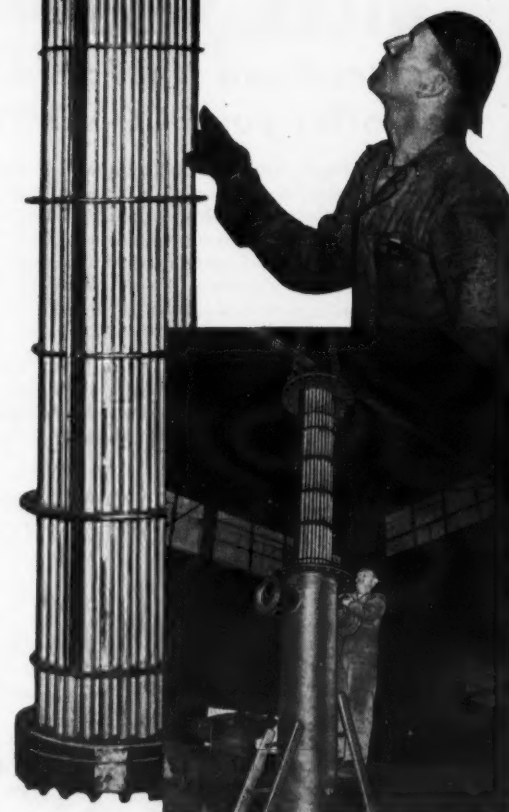
COPPER AND BRASS INCORPORATED

Founded by Paul Revere in 1801

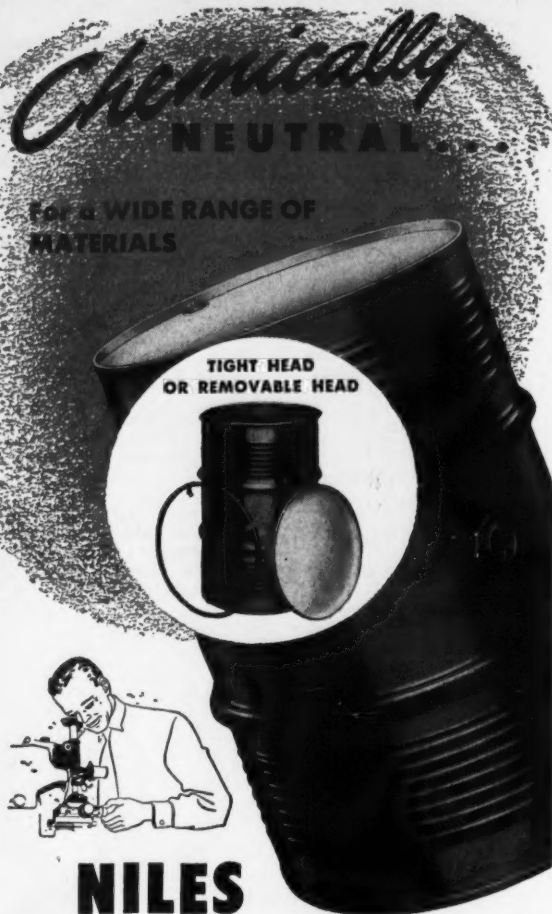
230 Park Avenue, New York 17, New York

Mills: Baltimore, Md.; Chicago and Clinton, Ill.; Detroit, Mich.;
Los Angeles and Riverside, Calif.; New Bedford, Mass.; Rome, N. Y.
Sales Offices in Principal Cities, Distributors Everywhere.

*Revere Admiralty
Metal Tubes in a heat
exchanger fabricated
by the Nooter Corpora-
tion, St. Louis, Mo.*



When inquiring check CP 1820 on handy form, pgs. 2-3



Lacquer-lined steel drums also offer you ECONOMY

The great strength, long life and economy of steel plus the chemical neutrality of NILES durable finish, lacquer lining provide a combination in drums that means *maximum efficiency*! NILES lacquer linings are proof against chemical reactions of a wide range of materials. Where better, more economical storage and shipping is needed . . . turn to NILES for the solution.

NILES lacquer-lined steel drums are available with tight head or removable head. ALL Niles drums provide a liquid-tight seal indefinitely. It will pay to investigate their money-saving potentials for you. Write for details to—

**NILES STEEL PRODUCTS DIVISION
REPUBLIC STEEL CORPORATION
NILES, OHIO**



When inquiring check CP 1821 on handy form, pgs. 2-3

PROCESSING EQUIPMENT

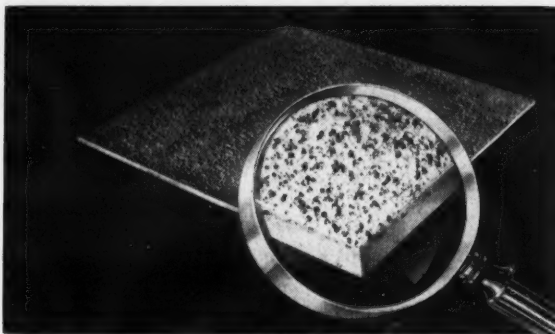
Abrasive grains and steel joined to form tough, non-skid flooring . . .

components are integrally combined so that wear merely exposes fresh abrasive

Uses: Non-skid floor plate for loading platforms and ramps, walkways, entrances, trench and hatch covers, and general flooring applications.

Features: Abrasive grain (same type used in grinding wheels) is rolled as integral part of steel floor plate; surface never loses its grip, as constant wear only exposes fresh abrasive.

Description: Plates are made in thicknesses of $\frac{1}{8}$ to $\frac{3}{8}$ ", and in widths up to 60 x 144". Larger sizes are available on special order. Plates can be sheared, drilled,



Enlarged sections shows granular nature of abrasive found in non-skid floor plate

countersunk, machined, and flame-cut. Flanging is not recommended, since abrasive material is non-elastic. Limited forming is possible, and directions for all recommended fabricating procedures are available from maker.

Source: Algrip floor plates are manufactured by Alan Wood Steel Company, Dept. CP, Conshohocken, Pa. . . or for more information check CP 1822 on handy form, pages 2 and 3.

'Preliminary' smoke from fire triggers electronic alarm system . . .

with slight modifications, system can also serve as burglar alarm

Uses: Electronic warning system for detection of fires and prowlers.

Features: Fire alarm system functions at first sign of smoke, thus gives quicker warning than systems relying on heat from actual flames.

Description: Systems are basically similar. Light beam projector and photo-electric cell are aligned, and intervening objects or other conditions that tend to interrupt light flow actuate alarm bells, lights, or whistles.

A good puff of cigarette smoke is enough to set off fire alarm; since smoke precedes 96% of all fires, this early warning often gives firemen enough time to actually prevent any outbreak of open flame. One unit will cover an area 200' long by 30' wide. Where partitions or walls are encountered, holes 3 to 6" diam are drilled to permit passage of light beam.

Units are easy to install. Photo-electric cell and projector each needs an outlet box, and each uses about 25 watts.



**IMMEDIATE
DELIVERY**

on *Pyrex*
**HEAT RESISTANT
SIGHT GLASSES**

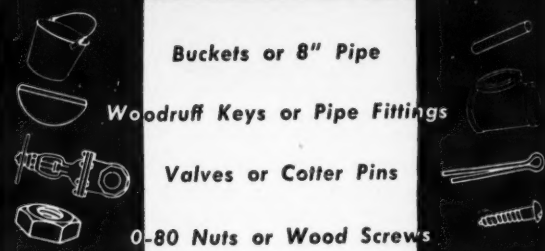
Now you can get **Sight Glasses** without delay cut or ground in any shape from PYREX Heat Resistant Polished Plate Glass—for use on ovens, absorption columns, evaporators, stills, pressure vessels—wherever heat resistant glass is desirable.

These heat-resistant **Sight Glasses** resist clouding and pitting, as well as all chemicals except HF and strong, hot caustic solutions. Special cutting and grinding equipment enables Swift to supply **Sight Glasses** in rounds, squares, rectangles, odd shapes in 8 different thicknesses, from $\frac{1}{8}$ " to 1" and in any size that can be made from a 24" x 60" plate. Write, wire, phone for quotations. Bulletin on request.

SWIFT LUBRICATOR CO., INC.

31 West 14th Street • Elmira, New York
When inquiring check CP 1823 on handy form, pgs. 2-3

The Most Varied Line of Stainless Steel Products under one roof!



Buckets or 8" Pipe

Woodruff Keys or Pipe Fittings

Valves or Cotter Pins

0-80 Nuts or Wood Screws

Balls, bolts, chain, dairy fittings, dippers, faucets, floats, gauge glasses, hinges, hose clamps, machine screws, pumps, rivets, scour cloths, sight flow glasses, taper pins, tubing, tubing fittings, ware, welding fittings, wheel brushes and many others.

Types 302—303—304—316—347
Carpenter 20

Catalogue on Request
SCHNITZER ALLOY PRODUCTS COMPANY

416 Pine Street

Elizabeth, New Jersey

When inquiring check CP 1824 on handy form, pgs. 2-3

PROCESSING EQUIPMENT

If current fails, or any part of the unit ceases to function properly, an immediate alarm is sounded; this alarm is an electric bell powered by 6-volt dry cell battery. Primary alarm signal itself can be located almost any distance from detection units.

Burglar alarm differs from fire alarm only in that an infrared ray is used in light beam projector to produce invisible light beam. When this beam is interrupted, alarm sounds. If desired, system can be so arranged that lights are automatically turned on; in fact, breaking of light beam can be translated into practically any action or effect.

Source: Safe-Eye fire and burglar alarms are products of Valley Forge Safe-Eye Alarm Service, Dept. CP, Valley Forge Highway, Lansdale R.R. 1, Pa. . . . or for more information check CP 1825 on handy form, pages 2 and 3.

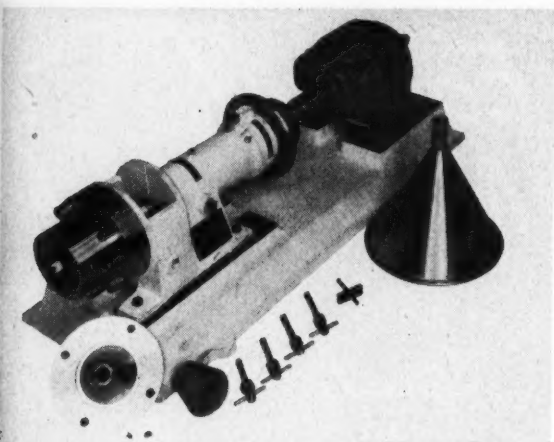
Continuous disintegration, emulsification conducted in colloid mill . . .

machine handles immiscible liquids, liquids with solids in suspension, and pastes

Uses: Colloid mill for laboratory and small scale production operations. Machine is essentially a high speed disintegrator and emulsifier in which immiscible liquids, liquids carrying solids in suspension, and pastes are finely dispersed, disintegrated, and homogenized. Used where capacities do not exceed 50 gph.

Features: Provides continuous action and uniformity of product.

Description: Mill consists of grooved conical rotor which spins at high speed within a correspondingly grooved

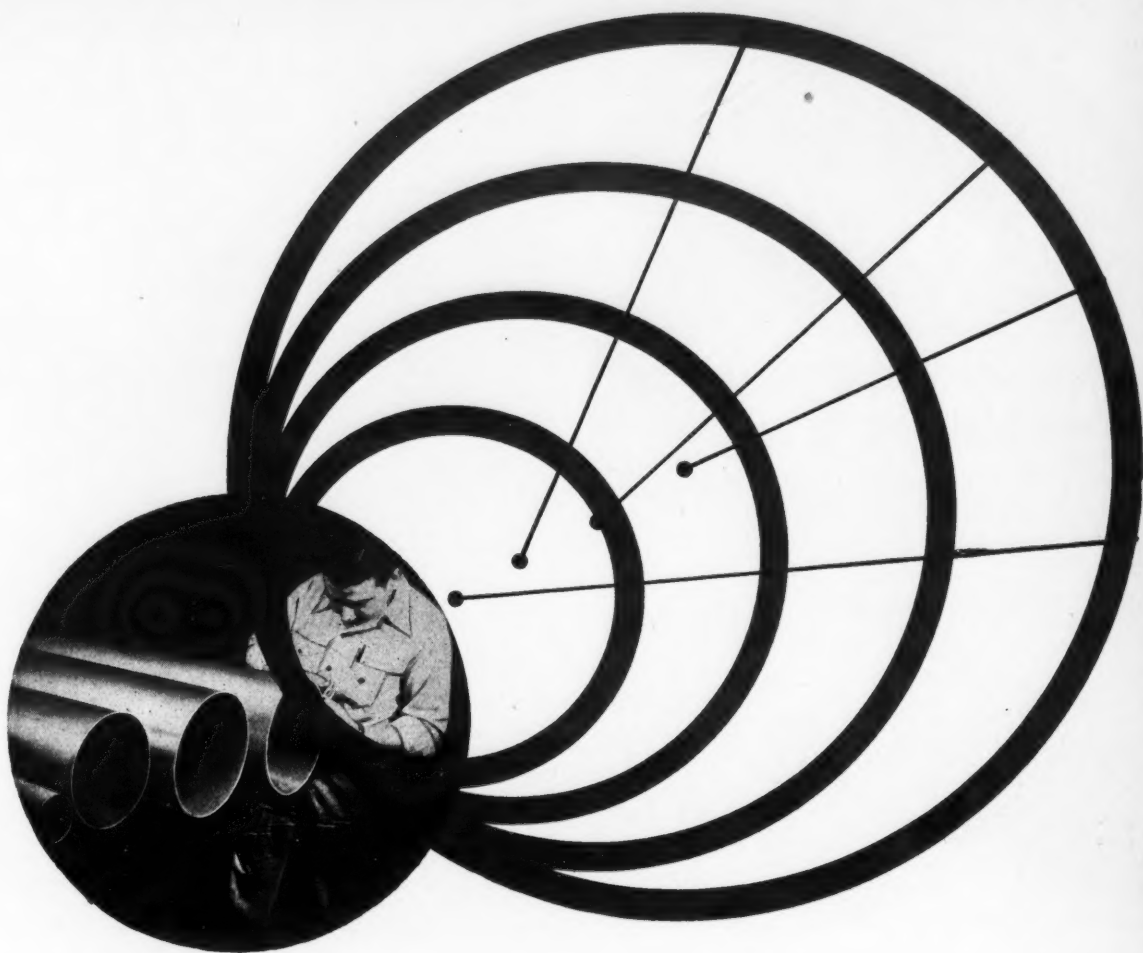


Colloid mill disassembled for inspection, cleaning

conical stator; clearance between them is regulated by calibrated external adjustment device. Materials are gravity-fed. Power source is 1 hp, 220-440 or 550 volt, 60 cycle, 2 or 3 phase motor.

Material chamber, inlet, outlet, and feed funnel — in fact, all parts in contact with product — are stainless steel. Material chamber is water jacketed for cooling or heating. Net weight is 250 lb; floor space requirements are 13 x 35 1/2". Inlet and outlet size is 3/4". Rotor turns at 3600 rpm. Other models of this colloid mill are available with horsepower ratings to 75.

Source: Model N.D. 1 colloid mill is manufactured by Chemicolloid Labs, Inc., Dept. CP, 30 Church St., New York 7, N.Y. . . . or for more information check CP 1826 on handy form, pages 2 and 3.



engineers who design for long life specify TRENTWELD

Here are 7 reasons why TRENTWELD is better

1. Largest variety of sizes — 4 1/2" to 30" inclusive
2. Finished tubing... machine-formed, machine-welded, machine-sized for uniformity
3. Made in a tube mill by tube experts
4. Made from tested cold rolled sheets . . . completely fused into finished tubing without added rod metal
5. No zone of weakness for corrosion to attack
6. Uniform section, metallurgically correct
7. Available for fabrication with any fittings

Trentweld Large Diameter (4 1/2" to 30") Stainless Steel Tubing should not be compared to rolled up and hand welded sheets: Trentweld tubing is machine formed and machine welded without metal added. The weld is fused to the parent metal by an exclusive Trent development. That's what makes the difference, and that's why more and more fabricators, designers and manufacturers of all types of processing equipment are turning to Trent for their tubing requirements.

When you do business with Trent, you get top quality tubing PLUS engineering assistance to put stainless tubing to work in your application . . . better! Write for Trentweld Data Bulletin and tell us the application you have in mind.

TRENT TUBE COMPANY

Subsidiary of Crucible Steel Company of America

General offices and plant: East Troy, Wisconsin

Sales offices in principal cities

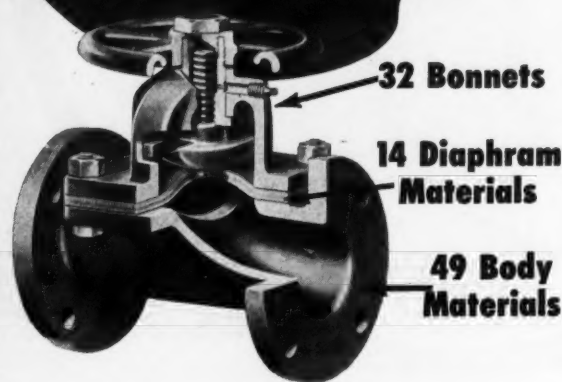
TRENTWELD

STAINLESS STEEL TUBING

When inquiring check CP 1827 on handy form, pgs. 2-3

**Hills-McCanna
offers**

**Over 20,000
different assemblies
for valving "hard-to-
handle" fluids**



All the various possible combinations of bonnet assemblies, diaphragms and body materials available in Hills-McCanna valves total over 20,000! True, many of the combinations would not be practical, but this figure does indicate the tremendously wide variety of valves that Hills-McCanna offers. No matter how specialized your problem of valving corrosive and/or hazardous substances, slurries, viscous liquids, gases, fermentation products, materials subject to coagulation, foods or beverages, the chances are that Hills-McCanna can furnish the proper valve to meet your needs.

Hills-McCanna valves are Saunders patent diaphragm valves wherein the closure is affected by pressing a resilient diaphragm against a transverse weir. Working parts are isolated from the flow. The valve is leak-tight and requires no packing. Sizes from $\frac{3}{8}$ " to 14".

Write, today, for full information and descriptive literature, HILLS-McCANN CO., 2370 West Nelson Street, Chicago 18, Illinois.

HILLS-McCANN

Saunders patent diaphragm valves

*Proportioning Pumps
Force-Feed Lubricators • Magnesium Alloy Castings*

When inquiring check CP 1828 on handy form, pgs. 2-3

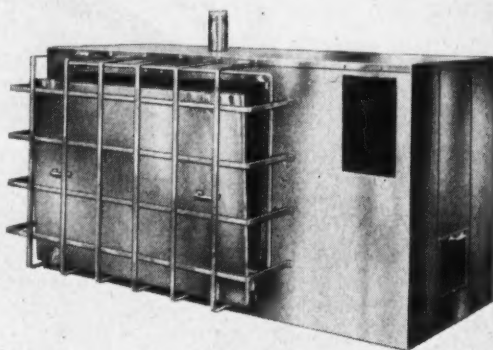
PROCESSING EQUIPMENT

**If explosion occurs in oven,
blowout panel safely
relieves pressure . . .**

electric unit for laboratory drying being offered in three sizes ranging from 2 to 20 cu ft capacity

Uses: Drying oven is intended for laboratory use where there is a possibility of explosion of materials being dried.

Features: Oven is fitted with a blowout panel which is released in event of an explosion or sudden pressure rise



Showing safety blowout panel of drying oven inside. Cage prevents panel from moving more than 8" from its normally closed position.

Description: Electric drying ovens are offered in three sizes ranging from 2 to 20 cubic feet capacity. Additional features include close temperature regulation and uniformity, convenient operation, resistance to corrosive atmospheres, elimination of sparks from electrical connections, high-velocity air transfer, adequate exhaust port, and auxiliary temperature limit controller.

Source: Electric Hotpack Co., Dept. CP, 5033 Cottman St., Philadelphia, Pa., is the maker. . . or for more information check CP 1829 on handy form, pages 2 and 3.

**Stepless speed control
from liquid rheostat . . .**

adjusted by varying both distance between electrodes and current-carrying area of electrolyte

Uses: Rheostat for variable torque loads such as induced and forced draft fan drives, centrifugal pumps, blowers, and compressor drives. Also suitable for load absorption and motor starting applications.

Features: Gives stepless speed control over wide range; resistance is varied by changing both the distance between electrodes and the current-carrying area of the electrolyte.

Description: Container is long and narrow, built of insulating material. Three cells are mounted side by side, one for each phase of wound rotor motor secondary, with their weirs connected to common lifting mechanism. This connection also serves as electrical connector between the 3 movable electrodes, forming the neutral.

Inlets are on same end as the stationary electrodes, and are connected to common header by means of insulating tubes. Reservoir, heat exchanger, circulating pump, and lifting mechanism for weirs complete unit.

In operation, electrolyte enters cell through the insulating tube. After it has filled cell to level of weir, it continues to discharge into reservoir directly beneath cell. From reservoir it passes into heat exchanger, through pump, and back into header, repeating cycle. With weir in its lowest

PERFORMANCE PLUS at LOWER COST where liquids are used in PROCESSING

When inquiring check CP 1830 on handy form, pgs. 2-3

**Economy
Mixing**

Eastern offers a complete line of PORTABLE MIXERS from 1/20 to 5 HP and a variety of speeds and motor enclosures. They can solve your mixing problem at lowest cost. EASTERN'S NEW MIXER CATALOG 500 GIVES COMPLETE MIXER SELECTION INFORMATION, WRITE TO DEPT. RA

Eastern INDUSTRIES INC.
REGENT ST EAST NORWALK, CONN.

When inquiring check CP 1831 on handy form, pgs. 2-3

PROCESSING EQUIPMENT

position, length of current path through electrolyte is longest, giving maximum resistance. When weir is raised, liquid level will also rise, always keeping neutral electrode covered, and length of conducting path will decrease until electrodes mesh at upper limit to give minimum resistance.

In addition to decreasing length of path, area of current-carrying electrode is increased. By proper design of stationary electrode and insulating block, almost any type of resistance vs. position curve can be obtained. Straight line speed characteristics are thus reached — equal speed changes per unit of rheostat travel.

Three sizes are available. Size 1 has approximate hp range of 0 to 500, and measures 38 x 40 x 89" high. Size 2 has approximate hp range of 600 to 1250, and measures 38 x 46 x 98" high. Size 3 has approximate hp range of 1250 to 2500, and measures 43 x 50 x 98" high. Full resistance range is given in 10" travel, which is only $\frac{1}{4}$ to $\frac{1}{3}$ that often required for conventional units.

Source: Type 257 liquid rheostat is made by Allis-Chalmers Manufacturing Company, Dept. CP, 1114 S. 70th St., Milwaukee, Wis. . . . or for more information check CP 1832 on handy form, pages 2 and 3.

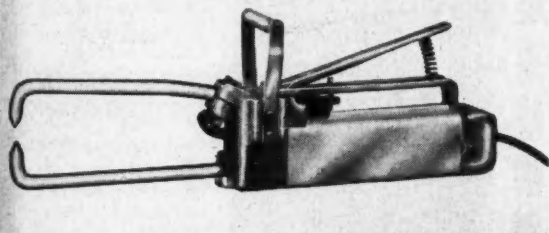
**Weight of only 33 pounds
makes spot welder
portable . . .**

can be converted to a stationary model by clamping onto maker's special stand

Uses: Portable spot welder for welding mild or stainless steel of combined thickness to $\frac{1}{4}$ ", or galvanized metal of combined thickness to $\frac{1}{8}$ ".

Features: Ease of operation; automatic switch control eliminates any finger movement. Slight squeeze on handle applies pressure to welding tips; additional squeeze turns on current. Release of pressure cuts off current and separates welding tips.

Description: Welder weighs about 33 lb. Protruding copper welding arms are available in 3 interchangeable lengths — 6, 12, and 18" — as well as in variety of shapes



Arms of portable spot welder are furnished in three interchangeable lengths

and sizes. For heavy-duty intermittent service, water-cooled arms and tips can be provided. To assure uniform welds, machine can be operated with timer which automatically cuts off current after any desired time-dwell.

When mounted on maker's specially designed metal stand, welder becomes stationary model. Operating pressure is applied through foot pedal, freeing operator's hands. Unit can still be used as portable model at any time by simply removing 2 metal brackets holding it to stand.

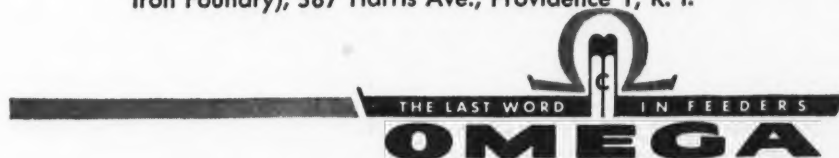
Source: Model BW spot welder is product of Greyhound A. C. Arc Welder Corp., Dept. CP, 606 Johnson Ave., Brooklyn 6, N. Y. . . . or for more information check CP 1833 on handy form, pages 2 and 3.



New OMEGA Belt-Type Gravimetric Feeder

- ★ Small, compact unit (cabinet approx. 30" x 17" x 17")
- ★ Stainless steel cabinet and feeding mechanism
- ★ High accuracy
- ★ Rate of feed up to 3 cu. ft./min.
- ★ Non-flooding feeding mechanism
- ★ Universal application

See this new feeder for dry materials on display for the first time at Booths 93-94 at the Power Show in Grand Central Palace, New York, Nov. 27-Dec. 2, or, for complete information and Bulletins, address Omega Machine Company (Division of Builders Iron Foundry), 387 Harris Ave., Providence 1, R. I.



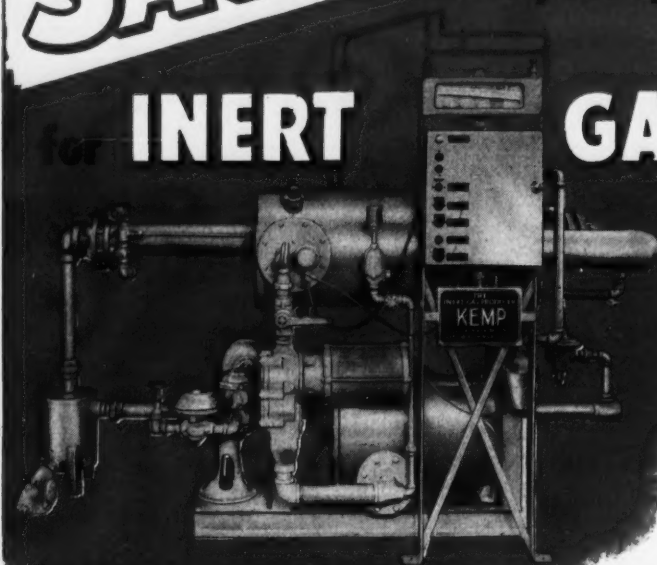
When inquiring check CP 1834 on handy form, pgs. 2-3

SAVE!

\$9 of every
\$10 you spend

INERT

GAS



**THIS KEMP INERT GAS PRODUCER
DELIVERS INERT GAS FOR 10%
OF YOUR PRESENT COST!**

DON'T pay premium prices for your inert gas! This Kemp Inert Gas Generator produces inerts at a saving of 83% to 90%. Saves you money no matter whether you use bottled inerts or produce them with old-fashioned, fuel-hungry equipment. This fully automatic Kemp Generator has push button starting . . . automatic proportioning over full operating range and automatic fire check.

ABSOLUTELY DEPENDABLE

Kemp Generators burn ordinary gas just as it comes from the mains. A famous Kemp Carburetor, part of each installation, assures complete combustion . . . producing a clean,

chemically inert gas containing 88% nitrogen, 12% CO₂ . . . a gas so pure it is used *without further processing* in the manufacture of aspirin and laboratory chemicals, fine paints, and many other products.

SEND FOR PROOF!

Whether you need inerts for purging, fire protection, mixing, blanketing or a special application . . . specify Kemp. For technical information write for special bulletin. *To find out how much you can save: tell us what you spend for inerts now. Then let us show you how much Kemp saves you per mcf. Mail coupon today!*

KEMP INERT GAS GENERATORS OF BALTIMORE

THE C. M. KEMP MFG. CO., Dept. G-11,
405 E. Oliver St., Baltimore 2, Md.

Gentlemen: Send me information. Also show me how much we can save on inerts.

CARBURETORS
BURNERS
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GAS GENERATORS
ADSORPTIVE DRYERS
METAL MELTING UNITS
SINGING EQUIPMENT
SPECIAL EQUIPMENT

Name
Company
Address
City Zone State

When inquiring check CP 1835 on handy form, pgs. 2-3

PROCESSING EQUIPMENT

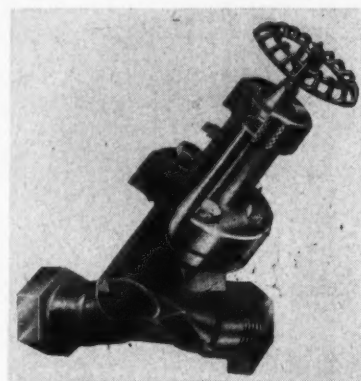
Plunger extends sleeve to close valve . . .

no fluid can leak out past this flexible rubber sleeve

Uses: Valve for controlling flow of acids, alcohols, ammonia, brine, caustics, oils, pulp, petroleum, salts or similar materials.

Features: Since no fluid can get past flexible rubber sleeve, there is no possibility of leakage.

Description: In operation, plunger extends sleeve against valve body, con-



Notice how sleeve completely seals in liquid

trolling flow. Since sleeve is backed by metal, valve is not restricted to low pressure applications.

Valve body is available with either flanged or threaded ends. It is made of cast iron, steel, stainless steel, bronze, or aluminum, and can be coated with plastic or rubber for special services.

No packing is needed, and valve stays lubricated. Sleeve is sufficiently elastic to be used in vacuum lines.

Source: Dialastic valves are made by Vernon Tool Company, Ltd., Dept. CP, 1101 Meridian Ave., Alhambra, Calif. . . or for more information check CP 1836 on handy form, pages 2 and 3.

Control valves are held during air failures by air locks . . .

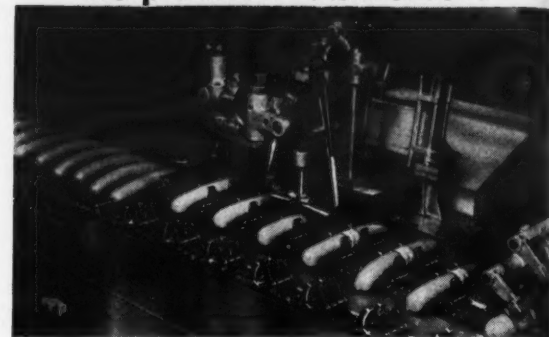
units can be combined to control interrelated functions

Uses: Air locks for holding regulating and control valves in position during failure of air supply.

Features: Units are available for use with two or more functions controlled by two or more valves, when functions are interrelated.

Description: Locks are held open by 50 psi air loading pressure. If pres-

DIAMOND CHAINS Help Band Frankfurters



Diamond #66 Roller Chain on International Banding Machine, with special attachments for handling frankfurters.

The adaptability of Diamond Roller Chains has been well established—for transfer of power from motor to main shaft, from shaft to shaft and with various types of attachment links for packaging and conveying operations.

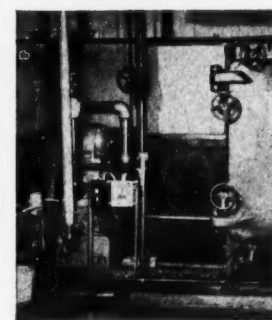
Whatever your application Diamond Chains will simplify operation and maintain top production speed. Our engineering staff is ready to make practical suggestions. **DIAMOND CHAIN COMPANY, Inc.**, Dept. 411, 402 Kentucky Avenue, Indianapolis 7, Indiana.

Offices and Distributors in all Principal Cities
Refer to the classified section of your local telephone directory under the heading CHAINS or CHAINS-ROLLER
Write today for Chain and Stock Sprocket Catalog 709.

DIAMOND ROLLER CHAINS

When inquiring check CP 1837 on handy form, pgs. 2-3

PROCESSING PROBLEMS IN THESE FIELDS?



Distilling . . . Drying . . . Extracting . . . Evaporating . . . Impregnating . . . Concentrating . . . whatever the process . . . Stokes MICRO-VAC High Vacuum Pumps provide the low pressures required for efficient and profitable operation.

Stokes MICROVAC pumps are a profitable investment where high vacuum chemical processing equipment is in use.

Write TODAY for your copy of this new 36-page catalog on High Vacuum processing and Stokes MICRO-VAC Pumps.



F. J. STOKES MACHINE CO.
5974 Tabor Road
PHILADELPHIA 20, PA.

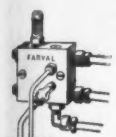
F. J. STOKES MACHINE COMPANY

When inquiring check CP 1838 on handy form, pgs. 2-3

CHEMICAL PROCESSING

New Farval Spray Valve

METERS LUBRICANTS TO SLIDE SURFACES AND OPEN GEARING



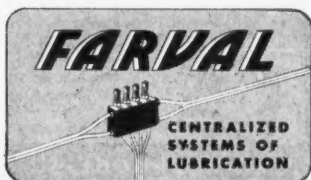
By an ingenious adaptation of the familiar Farval Dualine Valve, either grease or oil is sprayed through a nozzle—onto any desired area, in any amount, at any interval.

The new Farval Spray Valve can be added to a regular Farval Dualine Lubrication System wherever compressed air is available—or a complete system of spray valves may be installed, served by either manual or automatic pumping unit.

Farval Spray Valves have been thoroughly tested in service on a wide variety of machines and equipment, supplying lubricant efficiently, economically and safely to open gearing, slide surfaces and other areas where Farval closed systems are not readily adaptable.

For full description with diagrams, get Farval Bulletin No. 60. The Farval Corporation, 3257 East 80th Street, Cleveland 4, Ohio.

Write for this FREE bulletin



When inquiring check CP 1839 on handy form, pgs. 2-3

PIPE MARKERS



anyone can use—everyone can read

QUIK-LABEL Pipe Markers conform to American Standards Association Pipe Identification System. QUIK-LABELS come on handy cards . . . stick without moistening. Names of materials printed in large black letters on correct ASA background colors. CAN BE READ UP TO 75 FEET. Markers for over 140 materials, including all materials listed in ASA Standard A13, available on Brady Stock Cards. Specials made to your order. QUIK-LABEL Pipe Markers are Silicone Plastic coated to resist dirt, grease, fumes, moisture . . . indoors or out. Replace slow and costly painting and hand stenciling. Exclusive Starter-Strip automatically releases part of label for fast peeling. QUIK-LABELS mark your pipes so that anyone who can read will know what's in them. QUIK-LABELS leave no room for doubt . . . or tragedy. Write for useful literature and FREE SAMPLES today.

FREE SAMPLES

W. H. BRADY COMPANY Established 1914

Manufacturers of Self-Sticking Tape Products

Chippewa Falls 10, Wisc. Distributors in 125 cities

When inquiring check CP 1840 on handy form, pgs. 2-3

NOVEMBER, 1950

PROCESSING EQUIPMENT

sure drops below this minimum, lock closes and seals air in diaphragm chamber; this maintains enough pressure in chamber to hold valve in same position as it is at time of the loss of air pressure.

Type J4 lock is used in single valve operation, or in multiple valve operation where only 1 master controller is employed and only 1 function is accomplished.

Type J3 lock and P3 trip control are employed as unit for multiple functions, and cannot be restored to operation until air pressure rises above tripping point and control has been manually reset.

Source: Air locks and trip control are made by The Swartwout Company, Dept. CP, 18511 Euclid Ave., Cleveland 12, O. . . or for more information check CP 1841 on handy form, pages 2 and 3.

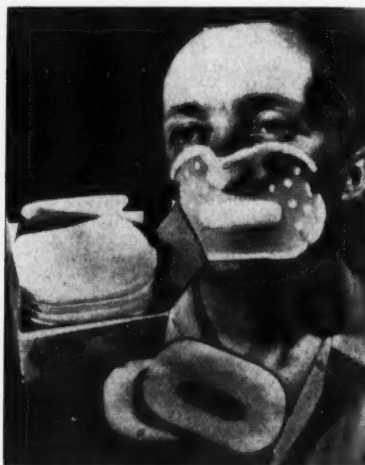
Coarse, non-toxic dust barred from lungs by light masks . . .

units cover only the breathing organs, weigh 1/2 oz

Uses: Protective masks for preventing breath intake of coarse, non-toxic dust particles.

Features: Masks cover only the breathing organs and weigh 1/2 oz.

Description: Masks consist of replaceable laminated filters retained in



Protective mask and filter replacements

aluminum shield and held to face by elastic head band.

Source: 48-A masks are made by General Scientific Equipment Co., Dept. CP, 2700 Huntingdon St., Philadelphia 32, Pa. . . or for more information check CP 1842 on handy form, pages 2 and 3.



A sparkling clear filtrate . . . FASTER...AT LOWER COST with Niagara Stainless Steel Filters

Niagara stainless steel filters give you complete, sparkling filtrate clarity, at rates two to five times as high as conventional cloth-covered filter presses—and at lower over-all cost. That is why more process engineers are choosing Niagaras than ever before.

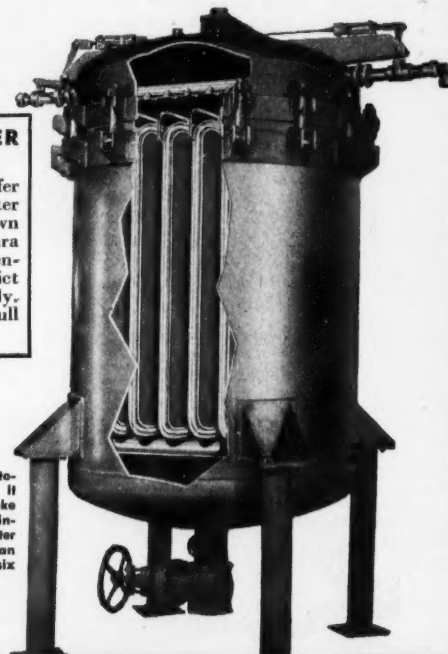
The totally enclosed, leakproof Niagara Filter requires NO CLOTHS to handle, wash or replace. There is almost no wear on the all-stainless-steel filter leaves, which provide up to 500 square feet of filter area in one compact unit. Maintenance is virtually eliminated, since there are no moving parts.

Niagara filtration engineers would like to help you get the answers on any process involving clarifying filters. Their experience can be helpful to you in getting improved quality, increased production, and lower maintenance and labor costs. Just write, describing the problem, and you will receive a prompt reply. Be sure also to ask for Bulletin G-447.

PILOT FILTER RENTAL

Should you prefer to conduct filter tests in your own plant, a Niagara pilot filter will enable you to predict results accurately. Ask us for full details.

The new Niagara "Auto-Sluice" is self cleaning. It permits fast automatic cake removal and disposal, increases productive filter time, and enables one man to handle as many as six filters at one time.



Niagara Filter
CORPORATION

3083 MAIN ST., BUFFALO 14, N. Y.

When inquiring check CP 1843 on handy form, pgs. 2-3

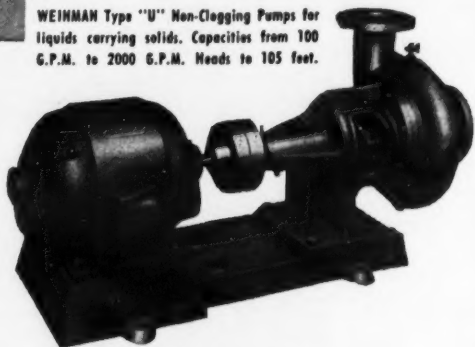
ONE PUMP BREAKDOWN CAN CRIPPLE AN ENTIRE PLANT!

*Are your pumps
DEPENDABLE?*

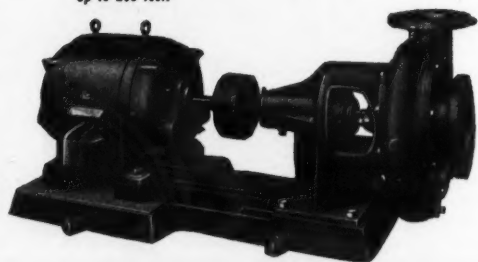
In many plants, uninterrupted production depends on the continuous operation of *one* pump. If it breaks down—everything stops while repairs are made. Whole days of production may be lost if it has to be replaced. To avoid this expensive risk, employ only the most dependable pumps—WEINMAN.

Our representatives will be glad to size-up your present pump installations and to tell you if they are adequate for your needs. Each is a specialist in centrifugal pumps, their design, application, and installation. They can help you stop trouble before it starts. Why not write, wire or call a WEINMAN Specialist today and make sure that your pumps are dependable.

WEINMAN Type "U" Non-Clogging Pumps for liquids carrying solids. Capacities from 100 G.P.M. to 2000 G.P.M. Heads to 105 feet.



WEINMAN Type GB and KB pumps available with or without leak-proof mechanical shaft seals—capacities up to 1000 G.P.M. Heads up to 200 feet.



Representatives in Principal Cities

Built by Centrifugal Specialists
The WEINMAN Pump Mfg. Co.

294 SPRUCE STREET • COLUMBUS 8 • OHIO

When inquiring check CP 1844 on handy form, pgs. 2-3

Page 102

PROCESSING EQUIPMENT

**Large volumes of air
under low pressure
moved by fans . . .**

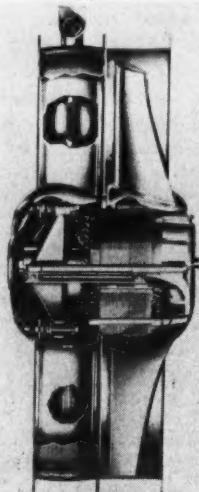
series is available in many different styles for specific applications, and in 2 size ranges

Uses: Blower fans for moving large volumes of air under static pressures to 4" water. Applications include use on cooling towers and in all types of duct installations.

Features: Fans are assembled to specification in many different styles to meet varying requirements.

Description: Series 16 fans have 16" hub, in diameters from 3 to 5'; series 24 fans have 24" hub, in diameters from 4 to 8'. Motors are available for any voltage to 550; 1, 2, or 3 phase; 25, 50, or 60 cycles. Drives are direct or through belts. Fans may have from 2 to 9 blades. They can be made from carbon steel, Monel, stainless steel, or any workable metal available in sheet form.

Source: Series 2000 fans are products of The Moore Company, Dept. CP, 800 S. Missouri, Marceline, Mo. . . or for more information check CP 1845 on handy form, pages 2 and 3.



Blower fans are assembled to specifications at factory

**7200 imprints per hour
is maximum rate
of marker . . .**

marker is automatic, requires only part-time attention of operator for feeding pieces into hopper

Uses: Electrically operated machine that automatically imprints code dates, prices, contents identifications, and other variable legends on flat folding cartons, paper cup and container caps, cards, tags, bags, etc. Handles corrugated, waxed, resin-coated, and other hard-to-print stocks.

Features: Machine can readily be used in conjunction with existing packaging operations, since it requires only part-time attention of operator. Its infeed magazine accommodates stock 12" high, consisting of about 300 pieces.

Description: This redesigned imprinter uses both fast-drying and pigmented inks, which give it variable production rates from 3600 to 7200 units per hour. Legends range in size from 1/16 to 6" in their smallest dimensions, and up to size of carton in their largest dimensions. Machine is equipped with any of 6 die wheels, ranging in size from 1 to 6"; larger sizes can be obtained on special order.

Imprints may consist of letters, figures, symbols, or special designs. Die wheel accommodates either individual pieces of rubber type or complete dies, all completely interchangeable. Power is furnished by fractional hp motor (110, 220, or 440 volt) and variable speed drive, fully enclosed

Trindl THERM-O-TRON

FOR THAWING FROZEN WATER PIPES
FOR HEATING PIPES CARRYING LIQUIDS
ALSO DOES BRAZING & SOLDERING



The Trindl Therm-O-Tron heats pipes electronically and can be thermostatically controlled to allow pipes to be

heated to a desired temperature. May be used to lower the viscosity of liquids (non-inflammable) in processing lines. Chemicals, Liquid foods, Chocolate, and other liquids can be kept at proper temperatures for the viscosity you need.

Pipe Thawing as well as Brazing and Soldering are additional operations that may be achieved with this versatile Trindl unit through the use of a special low-cost attachment. The Therm-O-Tron is economical to own and easy to operate . . . and will prove a valuable investment for any plant.



For full details and literature, write, wire or phone Dept. P26-MA.

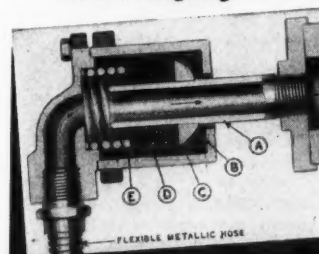
TRINDL PRODUCTS Ltd.

17 EAST 33RD ST.
CHICAGO 16, ILL.

When inquiring check CP 1846 on handy form, pgs. 2-3

NOW . . . Self-Supporting, too

Johnson Joints first showed how a stuffing box could be completely packless, self-lubricating and self-adjusting. Now the Type S shows how such a design can be self-supporting as well. Used wherever steam or liquids must be admitted to rotating machine parts—on paper machines, driers, slashers, rubber mills, machine tools, etc. Ends threat of misalignment completely, permits much wider range of application. Its big savings are well worth investigating.



Nipple (A) is fastened to roll or drum. Carbon-graphite ring (B) effects seal against rotating collar (C). Guide (D) supports joint, is also of self-lubricating carbon-graphite. Spring (E) is for initial seating only; in operation joint is pressure-sealed.

Write for
complete facts

THE NEW
JOHNSON TYPE-S
Rotary Pressure **JOINTS**

The JOHNSON CORPORATION, 826 Wood Street, Three Rivers, Mich.

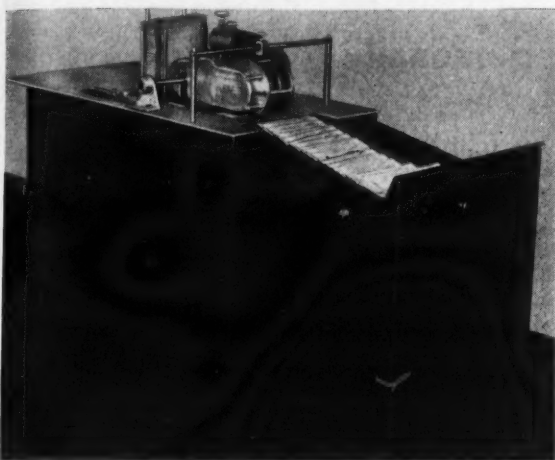
When inquiring check CP 1847 on handy form, pgs. 2-3

CHEMICAL PROCESSING

PROCESSING EQUIPMENT

in base. Imprinter occupies floor space of 24 x 56", and stands 34" high.

Two models are available, identical except for size capacity. Model C handles flat components from 2 to 7" wide and 3 to 12" long, or round caps from 3 to 7" diameter.



Machine uses fast-drying inks to achieve high speed imprinting rates to 7200 units per hour

Model D handles flat components from 3 to 14" wide and 4 1/2 to 22" long, or round caps from 4 1/2 to 14" diameter. Both print material of thicknesses to 5/16".

Source: Cartoncode, Models C and D, is made by Adolph Gottscho, Inc., Dept. CP, 6E Terminal Road, Hillside 5, N. J. . . . or for more information check CP 1848 on handy form, pages 2 and 3.

Scraper and paddle combination facilitate mixing of small batches . . .

hand-operated mixing unit is easily removed for cleaning; has stainless steel bowl

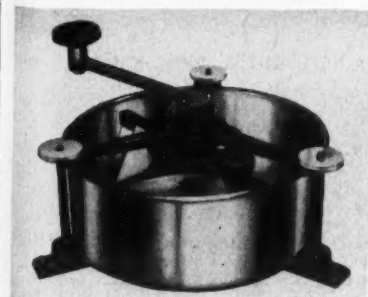
Uses: For hand mixing of experimental or small batches of materials. Particularly useful for rapid mixing in the laboratory.

Features: Mixing unit has a revolving arm with a scraper at one end for removing material from wall of bowl.

At other end of pinion is a mixing paddle that rotates on its own axis as it travels around the bowl.

Description:

A hand-operated mixer has a stainless steel mixing bowl 12" in diameter and 5 1/2" high. Complete mixing unit is easily removed from bowl for



Utility mixer for small batches

cleaning. Three clamps secure mixer to table for mixing operation.

Source: Utility mixer is a product of the Claud S. Gordon Company, Dept. CP, 3000 South Wallace Street, Chicago 16, Ill. . . . or for more information check CP 1849 on handy form, pages 2 and 3.

Longer service life at lower final cost

with dependable
CRANE VALVES



CASE HISTORY FROM CRANE FILES

PROBLEM: To find a more efficient and economical replacement for plug cocks having an average life of only 2 to 8 weeks in pipe lines handling liquid clay to filter presses.

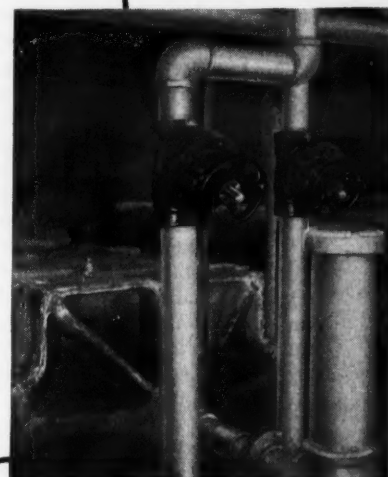
WORKING CONDITIONS: Working pressure 140 psi, with liquid clay flow creating highly erosive effect; also corrosive. Strong tendency to clogging. Operating cycles 5 to 6 per day; relatively quick opening and closing required.

SOLUTION: Crane No. 1610 Diaphragm Valves, iron body, packless design, with separate disc and diaphragm.

RESULT: After 11 months' uninterrupted service, Crane valves showed no significant wear or damage resulting from normal operating conditions. User assured of greatly reduced maintenance and replacement costs over plug cocks. No. 1610 Diaphragm valves approved for standardization on all filter press piping.

Another example of the greater value in Crane Quality, and the lower final cost of Crane Valves for every service. That's why . . .
More **CRANE VALVES** are used than any other make!

No. 1610 Diaphragm Valve. Ask for literature on full line through your Crane Branch or Crane Wholesaler.



The installation—Onondaga Pottery Co., Syracuse

CRANE

CRANE CO., General Offices: 836 S. Michigan Ave., Chicago 5, Ill.

Branches and Wholesalers Serving All Industrial Areas

VALVES • FITTINGS • PIPE • PLUMBING • HEATING

When inquiring check CP 1850 on handy form, pgs. 2-3



"approximate savings
of \$3,000 per year in
repair costs
and labor"

That's Fred A. Garcia, pictured with an installation of LaBour pumps in the Luke, Maryland plant of West Virginia Pulp and Paper Company, where he is superintendent of the electrolytic department. Here's what he says:

"The LaBour pumps have been operating in our caustic system for the past 20 months, with an approximate saving of \$3,000 per year in repair parts and labor as compared with pumps in the initial installation *** handling caustic cell liquor at 150° F. *** recycled until it reaches a concentration of 50% NaOH, with temperatures up to 212° F. *** 18 hours per day, 7 days per week *** thank you for valuable help in elimination of our pumping troubles and cutting our maintenance cost to a minimum."

We'll be glad to supply details about the application of LaBour pumps to your problem. Consult us without cost or obligation.



ORIGINAL MANUFACTURERS OF THE SELF-PRIMING CENTRIFUGAL PUMP

LABOUR

THE LABOUR COMPANY, INC. • Elkhart, Indiana, U.S.A.

When inquiring check CP 1851 on handy form, pgs. 2-3

PROCESSING EQUIPMENT

Process, lab, and pilot types of organic extractor announced . . .

continuous extraction with fresh solvent makes it possible to remove all extractable materials

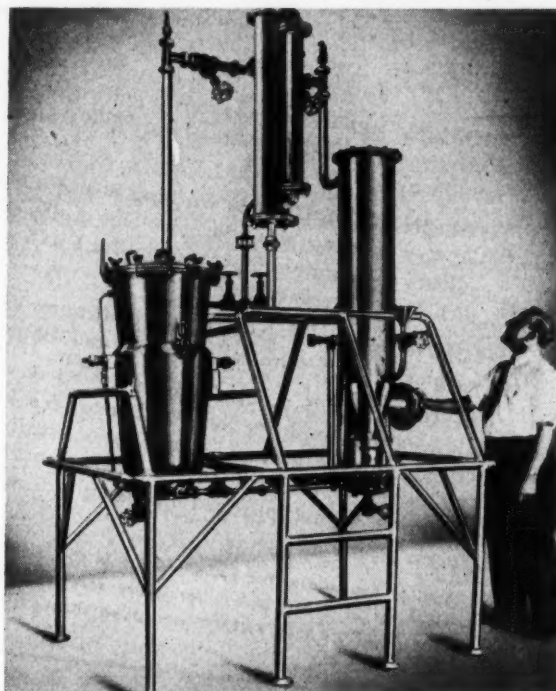
Uses: Production, laboratory, and pilot model extractors for general organic extraction applications.

Features: Continuous extraction with fresh solvent makes possible the removal of all extractable materials.

Description: Unit consists essentially of combination evaporator and concentrator, a condenser, and a percolator. Solvent is injected into system through funnel on evaporator, and material to be extracted is put into percolator. Solvent is then vaporized in evaporator and passed to condenser. At this point, vapor may be sent directly to percolator, or condensed and the liquid passed over contents of percolator.

Temperature of solvent leaving condenser is governed by regulating cooling water supply. Extract-bearing solvent then flows by gravity back to evaporator where solvent is evaporated, leaving extract behind to collect. This cycle may be repeated until extraction is complete.

Evaporator is so constructed that extract may be kept cool while solvent is being evaporated, an important item in preserving qualities of most extracts. Percolator is jacketed,



This production model organic extractor is stainless steel and if desired, operation can be reversed by distilling solvent in percolator through its contents, condensing, and returning it to percolator. Evaporator is not used in this case.

Usual lab unit is made of copper with bronze valves, although other metals can be used. Percolator capacity is 1.2 cu ft, and concentrated extract capacity of evaporator is about 1 gal. Larger sizes are also available.

Following points are outstanding in the operation: 1) relatively little solvent is needed to operate system; 2) extract is produced in very concentrated form; 3) concen-

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*"Substantial operations" does not necessarily mean an extremely large plant. But requests for the magazine exceed supply so we must get standards to insure publication being sent where it can be used to best advantage.

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Main Products

PROCESSING EQUIPMENT

trated extract is protected against excessive heat; 4) entire system is enclosed so that solvent loss is cut to minimum; and 5) solvent may be distilled off at end of extraction and drained from condenser.

Source: Lloyd Extractor is made by Brighton Copper Works, Inc., Dept. CP, Cincinnati, O. . . or for more information check CP 1852 on handy form, pages 2 and 3.

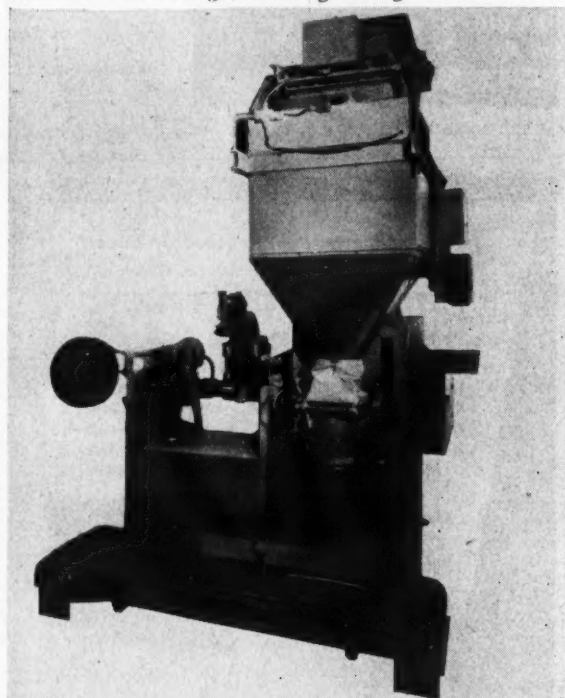
Free flowing materials packed in textile or paper bags . . .

three-in-one machine fills, weighs, and closes with either a 1- or 2-man crew

Uses: For packing free flowing materials in either cotton or paper bags. Machine is a combined filling, weighing, and closing unit with a weight range of 50 to 140 lb, accuracies to within 2 oz, and capacities to 12 bags per minute.

Features: Machine is so designed that it can be operated with either a 1- or 2-man crew. One man can pack from 5 to 7 bags per minute; two men can pack up to 12 bags per minute.

Description: Unit consists essentially of net weighing scale; pneumatically operated oscillating mechanism which settles contents of bags; dual bag closing unit which will



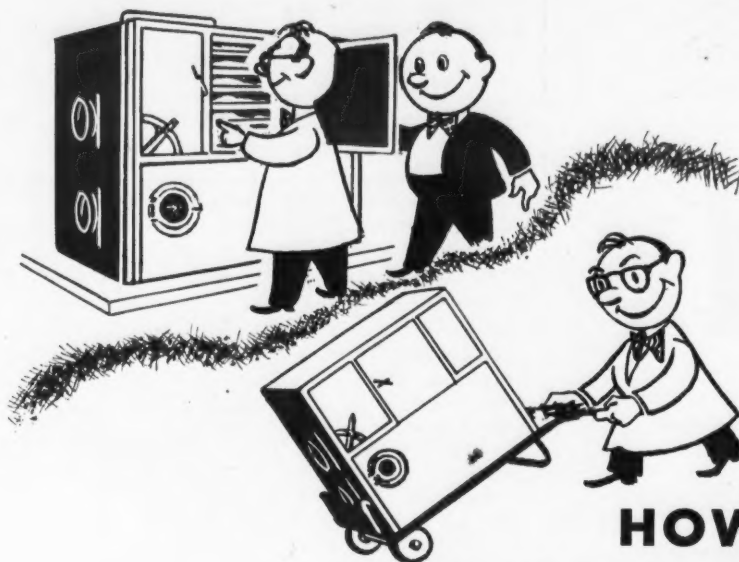
Combination weigher, filler, and closer packs free flowing material in either paper or textile bags

sew either multiwall open-mouth paper or textile bags; and conveyor. This conveyor is composed of 4 V-belts concavely arranged so that filled bags will stand upright as they pass from packing spout to sewing head.

Sewing head consists of 2 separate heads, one for paper bags, one for textile bags. Head that is not in use is swung out of the way of bags passing along conveyor.

Source: Gravity Packer is made by Bemis Bro. Bag Co., Dept. CP, 408 Pine St., St. Louis 2, Mo. . . or for more information check CP 1853 on handy form, pages 2 and 3.

TIPS ON SOLVING DRYING PROBLEMS—NO. 4



HOW IS DRYING TEST WORK CONDUCTED?

Drying test work conducted for you by Proctor engineers varies, of course, with different products and problems—but generally follows a somewhat standard pattern.

Test work is conducted in modern laboratories where Proctor research engineers have at their disposal, all of the latest data and equipment to assist them in ascertaining the information necessary to enable the preliminary engineering department to prepare plans for the basic type and size of equipment best suited to the individual problem.

In some cases it is impossible, because of the physical characteristics of the product to be studied, to transport the product to the Proctor laboratories. For example, the composition may change in transit. In such cases, Proctor engineers will come to your plant—and may arrange to have a laboratory dryer, like those used in the Proctor laboratories, sent to your plant for use in conducting on the spot research.

Usually there is no charge for any research conducted by Proctor engineers.

Based on the findings of this research, skilled Proctor engineers make preliminary plans for the type of and size of equipment needed to meet your requirements. This is submitted to you for approval, together with a quotation of price. Having reached that stage, you are well on the way to guaranteed results.

For the complete story of the Proctor approach to solving drying problems, write for Bulletin 361. For a lucid explanation of Proctor Job Engineered Drying Systems for the Process Industries, ask for Bulletin 342 as well.

PROCTOR CONTINUOUS CONVEYOR SYSTEMS

PROCTOR & SCHWARTZ INC • 663 TABOR ROAD • PHILADELPHIA 20 • PA •

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Titanium Dioxide
Sulfa Drugs
Calcium carbonate
Magnesium carbonate
Clay
White Lead
Finished Lithopone
Soy Bean Protein
Lead arsenate
Nitro guanadine

When inquiring check CP 1854 on handy form, pgs. 2-3

Hotpack

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DELIVER NOW!**

**CONSTANT TEMPERATURE
LABORATORY EQUIPMENT
AS FOLLOWS**



Constant Temperature Baths	Sterilizers
Hi-Low Water Baths	High Temperature Furnaces
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Drying Ovens	Glas-Col Heating Mantles
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Bacteriological Incubators — Humidified	

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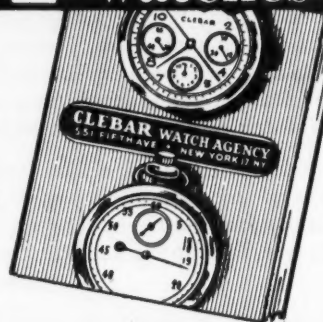
When inquiring check CP 1855 on handy form, pgs. 2-3

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PROCESSING EQUIPMENT

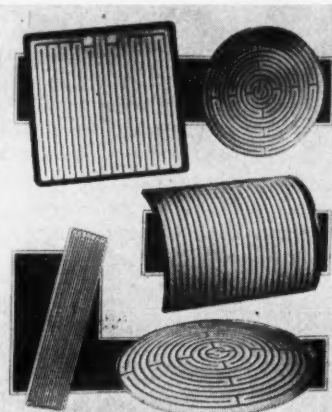
**Low to medium heat density
provided by glass units . . .**

supplied in flat, curved or convex shape for surface temperatures up to 600°F.

Uses: For heating and drying in industrial processes where low to medium density heat is required.

Features: Tempering process employed in making glass of heaters gives extra strength, sturdiness to glass so that it will survive unusual physical abuse. Resistance elements can be designed to operate on practically any voltage. No visible radiations from heating unit. Units aid maintenance of precise temperatures.

Description: Glass medium can be supplied in any thickness, in a variety of surfaces: smooth, rippled, ribbed, hammered, corrugated or prismatic. Glass can be supplied flat, curved or convex and in special shapes. The resistance elements consist of a ceramic metallic oxide which is fused into the back surface of the glass, having a thickness of .002". Watt densities up to 10 watts per sq in are practical. Surface temperatures up to 600°F are feasible.



Typical glass heating units

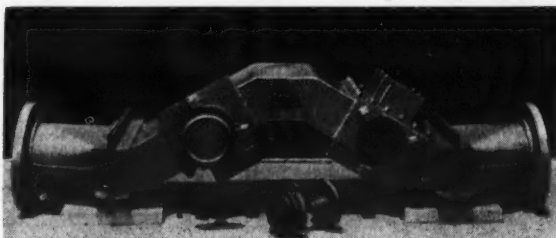
Source: Electric glass is produced by Appleman Glass Works, Dept. CP, Bergenfield, N. J. . . . or for more information check CP 1857 on handy form, pages 2 and 3.

**Two permanent magnets
remove tramp iron
from liquids . . .**

installed in pipelines, magnetic separator prevents damage to processing machinery

Uses: Magnetic separator for removing tramp iron from liquids, slurries, and slips flowing in pipelines, thus preventing damage to such processing equipment as refiners, pumps, and grinders.

Features: Baffles direct material flow 30° from normal straight line so that 2 stainless steel plate-type magnets



Magnetic separator with one cleaning port opened

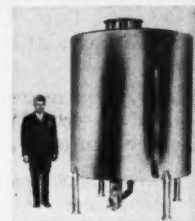
installed on opposite faces of hump can set up a magnetic barrier in tandem; what one misses, the other catches.

Description: Hump can be installed in lines varying in diameter from 6 to 20". It performs satisfactorily with materials flowing at volumes from 50 to 250 cfm, depend-

LOMAX STAINLESS STEEL STORAGE • MIXING • PROCESSING TANKS

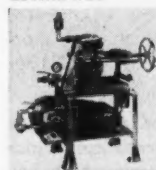
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Modern streamlined welded construction throughout. STOCK OR TO YOUR SPECIFICATIONS. All over the world chemical, food and beverage processors say, "When you buy Lomax; you buy Quality" developed in more than a quarter-century of experience. It will pay you to get the facts.



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. . . represent years of research and development with leading processors, world-wide. Glad to work with you on your filtering problems.

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**TOP, SIDE OR BOTTOM
AGITATING
MIXING TANKS.
ANY CAPACITY.**

When inquiring check CP 1858 on handy form, pgs. 2-3

**Here's Equipment Built to Stand Up Under
Your Production Requirements for
METERED PRESSURE PUMPING
of Such Chemicals as:**

SULPHURIC ACID • SODIUM HYDROXIDE
LIQUID CHLORINE • HYDROCHLORIC ACID
SLURRIES • CHLORINATED HYDROCARBONS
HYDROGEN PEROXIDE • NITRIC ACID
HYDROFLUORIC ACIDS • OLEUM • PROPANE
CYANIDE COMPOUNDS • STYRENE • FREON

• NO STUFFING BOX OR RUNNING SEAL
• POSITIVE DISPLACEMENT PISTON
MEASUREMENT

• FLOW RATE ADJUSTABLE
WHILE IN OPERATION

• MANUAL OR
AUTOMATIC
CONTROL

Lapp

PULSAFEEDER

PISTON DIAPHRAGM CHEMICAL PROPORTIONING PUMP

WRITE for Bulletin 262 with complete description and specifications.
LAPP INSULATOR CO., INC., PROCESS EQUIPMENT DIVISION, 315 MAPLE STREET, LE ROY, N. Y.

When inquiring check CP 1859 on handy form, pgs. 2-3

CHEMICAL PROCESSING

PROCESSING EQUIPMENT

ing upon consistency of fluid. Pressures to 45 psi can be used, as neoprene gaskets insure against leakage. Permanent magnets need no power source, and their stepped-pole plates form a recess from which entrapped iron can not be dislodged. Hand holes in the side plates facilitate cleaning.

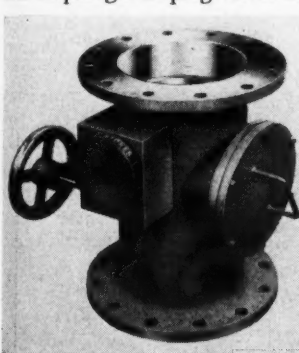
Source: Pressure Hump magnetic separators are made by Eriez Manufacturing Co., Dept. CP, Erie, Pa. . . or for more information check CP 1860 on handy form, pages 2 and 3.

Butterfly design disc valve for vacuum service is safe, compact, quick acting . . .

for pressure differential in both directions; only 10 turns open or close valve

Uses: Suitable for all high vacuum applications. Valve is designed for pressure differential in both directions. If is used in connection with a vacuum pump hooked up to a chamber, it is not only possible to exhaust the chamber through the valve, but also, by closing the valve, vacuum can be released to the pump and still held in chamber.

Features: Special features of the new valve include ease and speed of operation as well as compact design. Butterfly design requires only a fraction of the space needed for diaphragm or plug valves of equivalent capacity. Valve



Compact butterfly disc valve

has a full scale position indicator which shows the degree to which the valve is opened or closed. An access opening is provided for convenient inspection and replacement of sealing gaskets. Design of valve maintains full-cross-sectional area of pipeline.

Description: Valves are of butterfly disc type. Standard sizes are 6", 8", 10", and 12", while other sizes both smaller and larger are available. Opening and closing are effected through a worm gear, thus reducing effort. Only ten turns are required to open or close the valve, as compared to twice that amount generally required with diaphragm types. Operator can spin handwheel after movement is started. Operator is assured complete safety through automatic locking of valve in any position. There are no levers to snap back.

Convenient installation is assured, as the valves fit all standard pipe flanges. Collars or spacers are available to make up any difference in spacing between the valve and any of the standard plug or diaphragm types.

A cam-actuated valve disc assures positive seal and provides a large mechanical advantage at the initial opening and final closing stage to overcome the high pressure differential. A tight seal is further assured by a stainless steel valve seat that cannot rust. No lubrication of internal parts is required.

Source: Model 211 valve is built by F. J. Stokes Machine Co., Dept. CP, 5900 Tabor Road, Philadelphia 20, Pa. . . or for more information, check CP 1861 on handy form, pages 2 and 3.

SPECIFY B&W STAINLESS PIPE



TYPES—Seamless and Welded.

GRADES—Complete range of austenitic and ferritic stainless steels.

SIZES—Through 8" in all schedules.

SPECIFICATIONS—ASTM, ASME, U. S. Government, and others for special applications.

Suitable for coiling, bending, flanging, welding, and other such fabricating operations.

Write for
Bulletin TB-332,
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B&W
SEAMLESS and WELDED
TUBES and PIPE

When inquiring check CP 1862 on handy form, pgs. 2-3



Complete

Jacketed Pipe and Fluidometer Systems

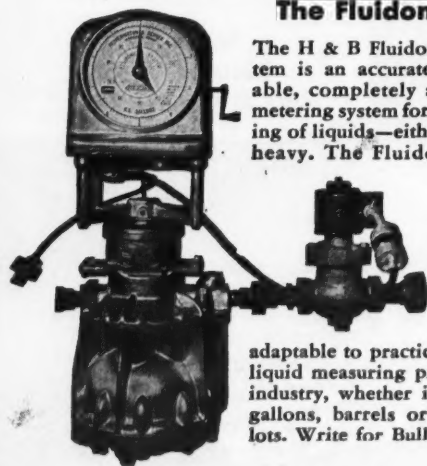
For All Liquid Handling Problems



H & B Jacketed Pipe Systems are engineered and manufactured to meet every requirement of dependable and economical processing in operations where the maintenance of uniform temperature in the process pipes is highly essential. Regardless of whether the product being handled requires a hot or cold temperature, or what heating or cooling medium is used, H & B Jacketed Pipe and Fittings help assure efficient production. Write for Bulletin S-47.

The Fluidometer

The H & B Fluidometer System is an accurate, dependable, completely automatic metering system for the batching of liquids—either light or heavy. The Fluidometer is



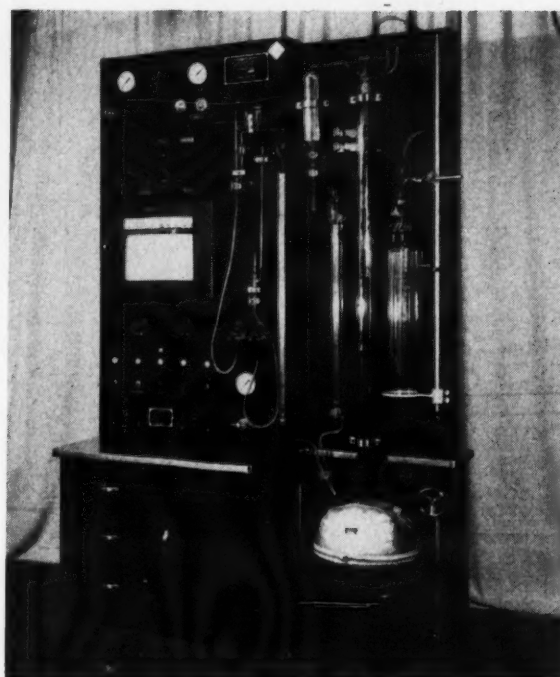
adaptable to practically every liquid measuring problem in industry, whether it involves gallons, barrels or tank car lots. Write for Bulletin E-46.

HETHERINGTON & BERNER INC
711 Kentucky Avenue, Indianapolis 7, Indiana

When inquiring check CP 1863 on handy form, pgs. 2-3

Offers Analyzer for Lab Distillations up to 350°C

Contains numerous automatic features permitting reproducible results without highly skilled operators



Semi-automatic analyzer for high-temperature distillations

USES: For laboratory distillation of samples ranging from 50 to 12,000cc in volume, at pressures from atmospheric to 5mm Hg absolute, and temperatures from minus 40 to plus 350°C. Suitable for routine analytical determinations as well as research investigations.

Features: Analyzer contains numerous automatic features which permit accurate reproducible results without the need for highly skilled technicians.

Description: Electronic, semi-automatic analyzer can be supplied with columns having as many as 300 theoretical plates and with those having flood points as high as 5000cc/hr, suitable for atmospheric pressure or vacuum use. All accessories and controls required for operation have been built into a compact, attractive panel and laboratory desk assembly.

A "Multi-Range" electronic strip chart recording potentiometer is used with multiple-reflector-type fractionating columns. It has 4 recording ranges, most sensitive being 0-0.8mv, and has provisions for shifting ranges to cover any desired portion of the temperature range between 0 and 350°C. Affords spreads of less than 20°C for one

thermocouple on the 11"-wide strip chart. Instrument sensitivity makes temperature easily discernible. An integral, low holdup distillate take-off head is available with a variety of packed sections. For a majority of applications, the column is supplied with a 100 plate "Heli-Grid" packing.

Where even lower holdup and pressure drop limits are required, the miniature "Hyper-Cal" column can be supplied with "Whirling Heli-Band" packing. For applications where an expendable packing is desired, a random type "Heli-Pak" helice packing is available. All the above type columns may be used interchangeably on the miniature "Hyper-Cal" apparatus, with equally successful operation. Combination of high distilling capacity and plates vs. holdup obtained in the miniature "Hyper-Cal" column permits sharp separations of samples as small as 2cc in only a few hours distillation time. Distilling capacities as high as 250cc/hr can be attained, thus making the distillation of samples up to 200cc or more entirely practical.

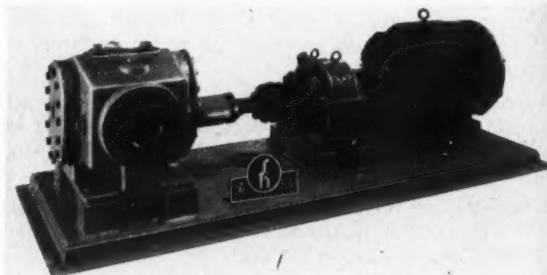
Source: Semi-automatic analyzer for high-temperature distillations is a product of Podbielniak, Inc., Dept. CP, 341 East Ohio St., Chicago 11, Ill. . . . or for more information check CP 1864 on handy form, pages 2 and 3.

Viscous liquids are pumped at high temperatures by gear pumps . . .

steam jacket completely surrounds internal parts to insure even thermal distribution

Uses: For handling viscous liquids at high temperatures. Hot road oils is an example.

Features: Steam jacket completely covers internal parts to insure even thermal distribution. Inlet, outlet, and cover flanges are cast integral with the pump base. Housing



Steam-jacketed gear pump. Note foot scale

construction is reported to eliminate the possibility of distortion due to pipe line strain or misalignment.

Description: Steam-jacketed pumps are herringbone-gear type; are available with Meehanite B, cast steel,

bronze, or special alloy case. Internal parts are built to individual specifications.

Pressure on the stuffing box is dissipated through a channel in the cover plates. Steam connections on pump jackets are readily accessible, and permit a variety of piping arrangements. Entire rotor and bearing assembly can be removed as a unit by releasing the coupling and removing the rear cover.

Gears are case-hardened, press-fitted and keyed to the shaft to prevent lateral or radial movement. Gear teeth have a specially designed high-pressure-angle tooth to prevent slippage.

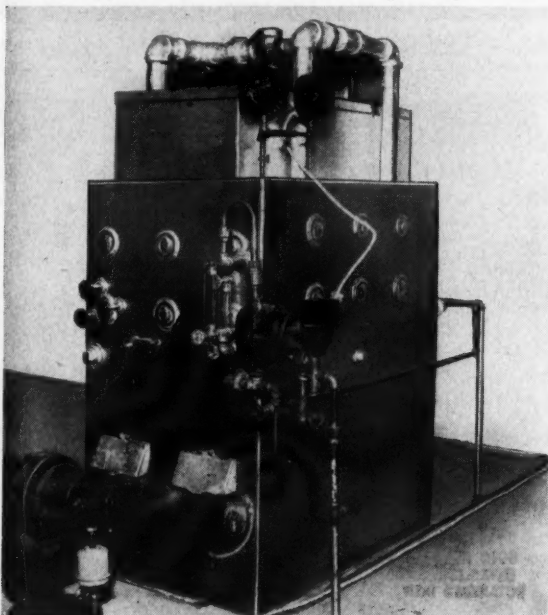
Source: Pumps are a product of Dept. P-A of the Schutte and Koerting Company, Dept. CP, 12th & Thompson Sts., Philadelphia 22, Pa. . . or for more information check CP 1865 on handy form, pages 2 and 3.

Supplies 3 types of steam simultaneously or separately . . .

process boiler makes use of 70-90% of heat developed from fuel

Uses: Boiler for process applications can supply three types of steam: 1) saturated steam at temperatures to 220°F is supplied in 15 minutes; 2) some saturation in the steam at temperatures to 280-400°F in 20 minutes; and 3) dry steam, with absolutely no trace of moisture, at temperatures to 390-550°F in 35 minutes time.

Features: Interesting fact is that these 3 types of steam can be supplied at the same time or separately. Maker



Operation of boiler does not require licensed engineer

reports that this boiler makes use of 70-90% of the heat developed from fuel. Boiler does not require a licensed engineer for operation; in addition, it is fully automatic.

Description: Boiler is designed with vertical flues and special baffles to hold the heat that is often lost by conventional units. ASME-approved flange steel is employed in construction.

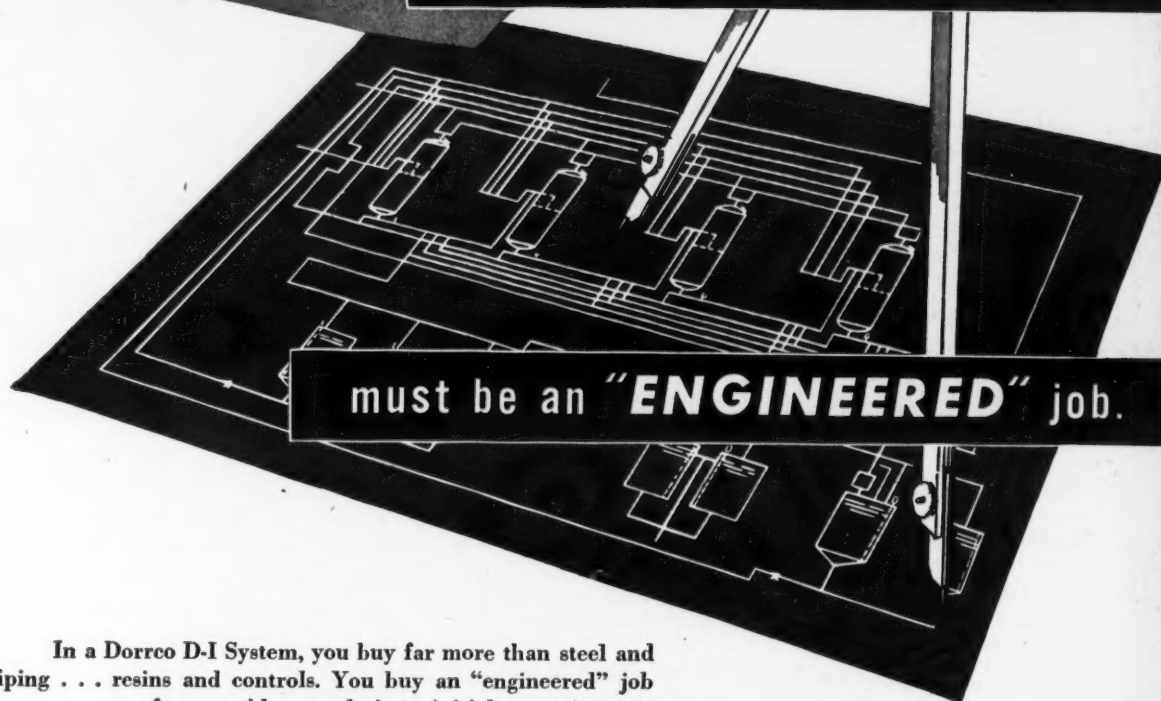
Source: Series 1500 process boilers are a product of the Consolidated Boiler Corporation, Dept. CP, 126 Dartmouth St., Boston 16, Mass. . . or for more information check CP 1866 on handy form, pages 2 and 3.

NOVEMBER, 1950

*in the purification
of water and other solutions
by ion-exchange . . .*



the successful operating plant



must be an "ENGINEERED" job.

In a Dorco D-I System, you buy far more than steel and piping . . . resins and controls. You buy an "engineered" job from problem analysis to initial operation . . . tailor-made to fit your particular conditions . . . geared to operate at maximum efficiency.

First step in the consideration of any large scale ion-exchange operation is a fact-finding evaluation of all phases of the problem. At this point, our experience with the "engineered" job will prove a useful supplement to your own knowledge.



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DORR

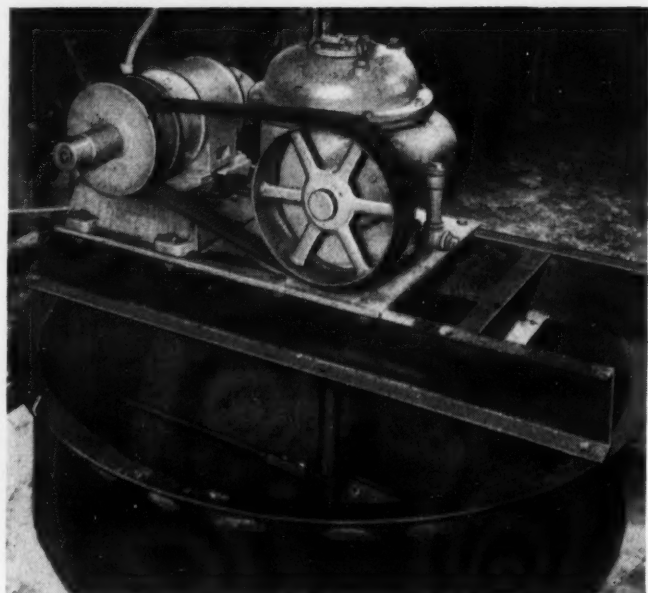
RESEARCH — ENGINEERING — EQUIPMENT

When inquiring check CP 1867 on handy form, pgs. 2-3



**SET TO GO WITH
NETTCO**

**AT
MARDEN-WILD, CORP.**



In processing animal and fish oils, Marden-Wild Corp. of Somerville, Mass., required an agitator for handling various types of oils with widely varying viscosities. Based on their experience with Nettco equipment during the past 24 years, they again came to Nettco to solve their mixing problem.

Nettco solved the problem with a complete installation built of these standard components and engineered specifically to meet the customer's own particular needs:

Agitator drive — Nettco Model WT-27 with 5 H.P. motor and variable speed drive.

Stirrer — Nettco combination paddle and anchor type.

Tank — 1500 gallons capacity. Jacketed, cone bottom type.

The variable speed drive assured the optimum stirrer speed for each individual mix. Here, again, Nettco equipment provided "custom-built" efficiency at low first cost since standard units were used throughout.

For agitators engineered to your process requirements contact:

**NEW ENGLAND TANK & TOWER CO., 93 Tileston St.,
Everett 49, Massachusetts**

NETTCO *Engineered* AGITATORS

When inquiring check CP 1868 on handy form, pgs. 2-3

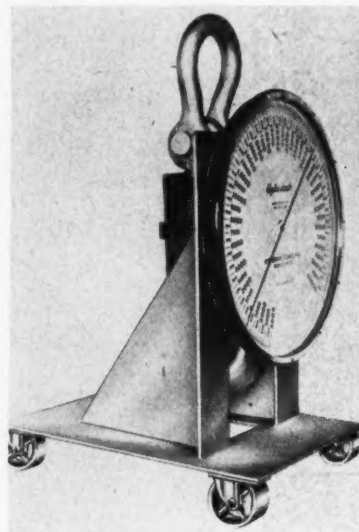
PROCESSING EQUIPMENT

**Offers mobile stands for
holding crane scales . . .**

stands prevent damage occurring
if scales are left on floors

Uses: Stands are for holding maker's "Hydroscales" crane scales when not in use. One accommodates scales with 1/4 to 5-ton capacity, the other accommodates scales up to 50-ton capacity.

Features: Prevents damage to crane



Stand for crane scales

scales that often occurs if they are left laying around on the floor.

Description: Stands are constructed of welded steel plate and fitted with casters. In use, scale is lowered by hoist into the stand and secured by locking bar. Scale and stand can then be rolled by truck, or lifted as a unit by the scale eye, and transported to any location.

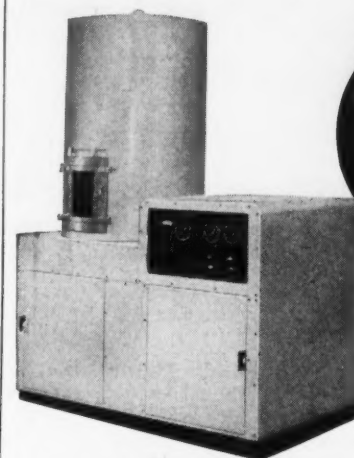
Source: Product of Hydroway Scales, Inc., Dept. CP, 20624 W. Eight Mile Rd., Detroit 19, Mich. . . . or for more information check CP 1869 on handy form, pages 2 and 3.

Industrial equipment shown in catalog

Many items of finishing equipment are shown in 12-page catalog. Described are cleaning and pickling equipment, drying ovens, cooling tunnels, spray booths, flow and dip coaters, and baking ovens.

Miscellaneous equipment includes dust collectors, conveyors, tanks, pressure vessels, and air filtering systems. Catalog A-650 is issued by The R. C. Mahon Co., Dept. CP, Detroit 34, Mich. When inquiring specify CP 1870 on handy form, pages 2 and 3.

Research Spray Dryer



for
**PILOT PLANT
and LABORATORY
OPERATIONS**

**Ask for
Bulletin
D-106**

This new unit provides instant drying at low temperatures with close control of moisture content of the finished product. Recommended for all applications requiring small drying capacities, including high-value low-volume pharmaceuticals. Full information on request.

SWENSON EVAPORATOR CO.

Division of Whiting Corporation

15667 Lathrop Ave.

Harvey, Illinois

When inquiring check CP 1871 on handy form, pgs. 2-3

**SPECIFY
THERMALLOY**

heat and abrasion resistant castings

CHEMALLOY

corrosion resistant castings

**Muffles • Retorts • Pots • Baskets
Trays • Fixtures • Furnace Parts**

Heat, Abrasion and Corrosion Resistant Castings of all types

*Reg. U.S. Pat. Off.

AMERICAN

Brake Shoe

COMPANY

ELECTRO-ALLOYS DIVISION

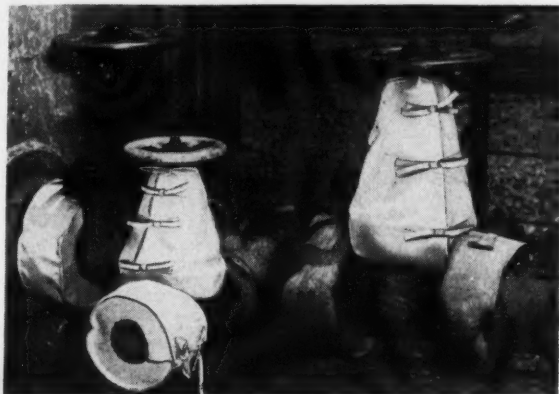
When inquiring check CP 1872 on handy form, pgs. 2-3

CHEMICAL PROCESSING

Sprays from flange, valve leaks prevented by easily installed protective fabric covers . . .

have capacity to contain breaks against usual pressures; useful in outdoor installations

Uses: Valve covers fit neatly from stem well around under bonnet flange so that a gasket failure at flange is guarded as well as a packing failure. The first of two types of flange covers is designed for pipes that have flanges either welded or back welded so that there is no



Covers fit neatly from stem around flange

concern about leakage other than at the flange gasket itself. The second type is designed for installation where there is a possibility of leakage along the pipe at the flange gasket.

Features: Protect against accidents involving corrosive chemicals. Not only guard against spray but have capacity to contain breaks against reasonable pressure long enough to protect workers in vicinity.

Covers cost less than metal, and fit installations regardless of bends or close quarters. They are easily installed and removed for inspection. Nuts, bolts, threads can be kept greased and protected from weather for easy maintenance.

Description: Both types have drain holes to carry off any seepage. These holes are so located that any leakage would not spray out. Covers lend themselves well to installations having elbows, tees, valves, and similar connections as well as to straight line installations.

Although a few concentrated acids will deteriorate the fabric, sufficient warning is given by discoloration long before failure occurs.

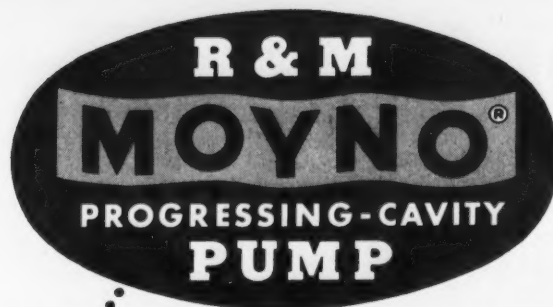
Flange cover types are available in stick sizes for 1, 2, 3, 4, and 6" pipe sizes. Valve covers are supplied in accordance with four simple measurements.

Source: Milscheff, Dept. CP, 740 Broadway, New York 3, N. Y. . . . or for more information check CP 1873 on handy form, pages 2 and 3.

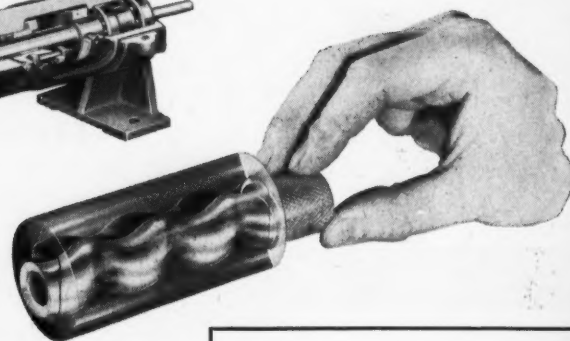
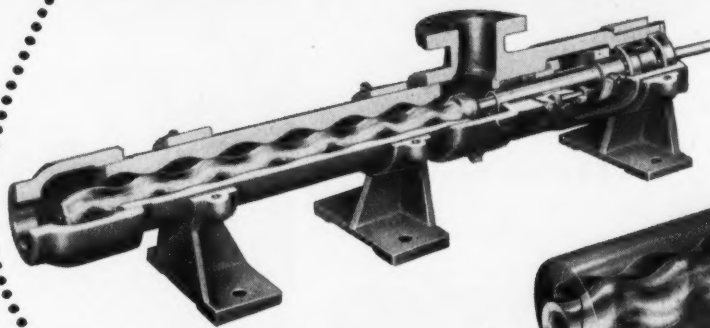
Liquid flow regulation performed by valve

Four-page bulletin contains data on 4 sizes of liquid flow regulator valves with capacities of 0.1-1.5, 1-12.5, 4-40, and 10-100 gpm. Valves control flow of water, oils, or acids, and are completely self-contained. Large, colored cutaway drawing clearly illustrates principles of operation. Bulletin 502 is issued by W. A. Kates Co., Dept. CP, 430 Waukegan Rd., Deerfield, Ill. When inquiring specify CP 1874 on handy form, pages 2 and 3.

NOVEMBER, 1950



Won't Cavitate!



HERE'S SMOOTH, CONTINUOUS POSITIVE PRESSURE FOR ALL YOUR PUMPING NEEDS

Moyno "progressing-cavity" pumping—with its positive displacement and pressure—delivers constant, uniform, steady flow on every type of service. Even liquefied gases, such as butane, propane, carbon dioxide, oxygen, nitrous oxide, etc., won't "flash" to cause vapor-locking. And heavy slurries or non-pourable pastes present no problems whatever. *Thousands* of Moynos in daily use are doing the "impossible."

EXCELLENT FOR CHEMICALS, ABRASIVES

Moynos move virtually anything that will push through a pipe, yet they're not *all-purpose* pumps. Each is built to do one job both economically and well. Rotor, stator, and housing types are variable for *specific requirements* to thus combine outstanding performance with utmost durability. Moynos work where *other pumps* won't. Call in your Moyno Man today!

ROBBINS & MYERS • INC.

SPRINGFIELD 99, OHIO • BRANTFORD, ONTARIO
MOTORS • HOISTS • CRANES • FANS • MOYNO PUMPS



No Pistons or Valves, and Just One Moving Part

Moynos self-prime with nearly perfect vacuum—pass particles and solids in suspension—deliver positive pressures to 1000 p.s.i., without pulsation—meter flow—reverse merely by reversing rotation—stand up where other pumps fail. The simple rotor-stator pumping element does all the work . . . takes all the wear . . . is easily replaceable.

FACTS FOR THE ASKING

Get the whole amazing R & M Moyno story—specifications, dimensions, applications. Types and sizes for all uses. Write for Bulletin No. C-30-P.

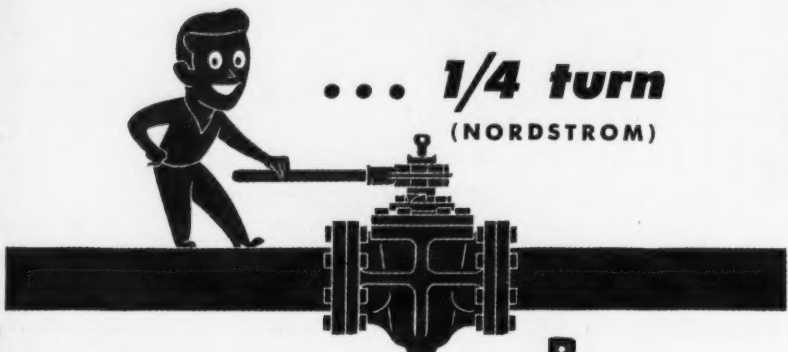
When inquiring check CP 1875 on handy form, pgs. 2-3

Why labor to close a valve?

17 turns ...
(CONVENTIONAL VALVE)

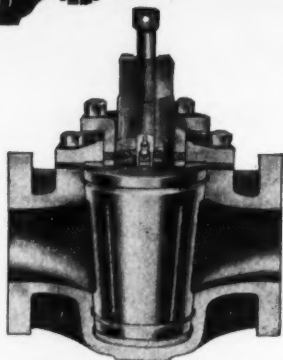


... 1/4 turn
(NORDSTROM)



Simple Rotary Movement

It takes force to close a conventional valve because a wedging action must take place between the gate or disc and the seat in the body. *But no jamming force is needed to close a Nordstrom.* You merely turn the plug 90 degrees. The plug slides on a lubricated seat. There's no stress...no distortion...no stuffing-box problem. Don't wait until an entire battery of valves need replacement. Install a Nordstrom every time you have to replace a worn-out or troublesome valve.



Sizes—1/4" to 34"
Pressures—
vacuum to 15,000 lb test

Nordstrom

LUBRICATED VALVES

... now automatically lubricated with HYPERMATIC lubricant

Write for descriptive literature

ROCKWELL MANUFACTURING COMPANY

400 North Lexington Avenue, Pittsburgh 8, Pa.
Atlanta, Boston, Chicago, Columbus, Houston, Kansas City, Los Angeles, New York,
Pittsburgh, San Francisco, Seattle, Tulsa



When inquiring check CP 1876 on handy form, pgs. 2-3

PROCESSING EQUIPMENT

Snap or rivet combines respirator and goggles ...

unit protects eyes and lungs from sprays and fine dusts

Uses: Respirator-goggle unit for protection from chemical splashes, spray, light impact of foreign particles, and fine dusts.

Features: Respirator and goggles are each individual units, joined by snap or rivet.

Description: Respirator protects against a variety of dusts or gases by means of specific cartridges or disc filters. It has face mask of pliable



Respirator-goggle combination

rubber. Valve design assures complete air expulsion without sticking, and does not allow moisture to collect.

Air-tight goggle frame is molded from synthetic rubber. Broad bearing surfaces assure wearing comfort. Indirect ventilation perforations prevent fogging; acetate lens provides wide-angle vision.

Source: No. 700 goggle and No. R2000 respirator are made by American Optical Company, Dept. CP, Southbridge, Mass. ... or for more information check CP 1877 on handy form, pages 2 and 3.

Tells performances of 2 solvents

Four-page bulletin contains details on performances of 2 solvents in nitrocellulose formulations. Test data indicates that the use of these solvents in both lacquer and thinner makes possible the use of higher solids without sacrifice of such properties as blush resistance or drying time.

Bulletin E-1-2 is issued by Celanese Corporation of America, Dept. CP, 180 Madison Ave., New York 16, N. Y. When inquiring specify CP 1878 on handy form, pages 2 and 3.

The Only Stub End with ALL THESE FEATURES

- Machine tool cut and beveled.
- Smooth interior walls.
- Formed cold by exclusive Welding Fittings process.
- Heat number permanently stamped as record of actual analysis and physical properties.
- Annealed, cleaned bright and passivated.
- Trade mark, type of material, size, schedule, wall thickness marked.



FLOWLINE stainless welding stub ends, tees, ells, reducers, and caps are available in sizes from 1/2" through 12". 2846 stock items—see Bulletin S-310.

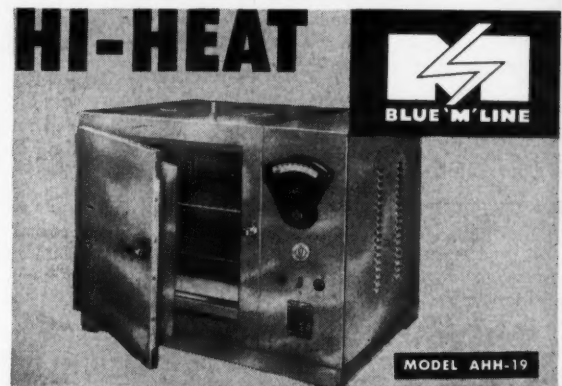
FLOWLINE
TRADE MARK
STAINLESS WELDING FITTINGS

WRITE FOR
BULLETIN
S-310

WELDING FITTINGS CORPORATION, NEW CASTLE, PENNSYLVANIA
World's Largest Manufacturer of Stainless Welding Fittings

STAINLESS
STEEL TYPES
304, 316, 347
MONEL
INCONEL
NICKEL

When inquiring check CP 1879 on handy form, pgs. 2-3



MODEL AHH-19 GRAVITY CONVECTION OVEN

ALL ELECTRIC • ALL STAINLESS STEEL • FULLY AUTOMATIC
TEMPERATURE RANGE FROM 100° F TO 800° F

Equipped with 3 heat switch for low, intermediate, and high temperatures. Double walled housing and door of polished stainless steel inside and out. All six sides have 5" of dual MODELLA insulation. Unconditionally guaranteed double-bank Modella heating element insures positive temperature uniformity. Two stainless steel shelves that are adjustable and removable.

Model AHH-19: Inside dimensions: 19" W x 15" H x 18" D
Current consumption: 18 amps on 230V.
Voltage: 230/1 ph./60 cycle A.C.

\$690.00

Also available in 800 F series:
Model AHH-12...12" x 12" x 12" I.D. \$495.00
AHH-16...16" x 16" x 14" I.D. 590.00
AHH-24...24" x 24" x 20" I.D. 810.00

* Other models for 1000° F and 1200° F operation

CONTACT YOUR LOCAL DEALER or

BLUE M ELECTRIC CO.
306-8 W. 69th ST. CHICAGO 21, ILL.

When inquiring check CP 1880 on handy form, pgs. 2-3

CHEMICAL PROCESSING

PROCESSING EQUIPMENT

Plates of pressure filter assembled as cartridge for easy handling . . .

maintains high sanitation standards; gives top-quality product till end of filtration cycle

Uses: Horizontal-plate pressure filter has been developed to attain the high standards of sanitation required in the beer industry. Imparts a brilliant final polish to beer.

Features: Employs a prefabricated medium and diatomaceous filter aid arranged to assure top-quality product until the end of the filtration cycle. Filter has been designed to eliminate all air pockets, and to provide for simple and complete disassembly so that all surfaces may be exposed for cleaning. To further simplify cleaning, plates are bolted together in the form of a cartridge, enabling removal or insertion as a unit in a fraction of the time than is possible when handling them separately.



Sanitary operation earmarks horizontal-plate pressure filter

Description: Filter is offered in a variety of materials of construction to meet requirements of specific applications. Working pressure is 100 psi.

Secure bolting of the filter plate cartridge and precision of sealing points prevent by-passing. Thus, increased pressure differential and decreased flow rate determine the end of the filtration cycle, rather than lowering of product quality.

By keeping an extra cartridge of filter plates on hand, the filter can be kept in practically continuous operation. When plates need cleaning, it is only necessary to remove dirty cartridge and replace it with a clean one.

Source: Filter is a product of the Sparkler Manufacturing Company, Dept. CP, Mundelein, Ill. . . . or for more information check CP 1881 on handy form, pages 2 and 3.

Interesting information about stuffing boxes

Four-page bulletin is designed to suggest solution of common stuffing box difficulties in industrial pumping operations. It offers suggestions on such vital matters as number of rings to use, depth of box, and type of packing.

It points out that chemical and physical properties of the liquid, speed of shaft, pressure, and temperature are governing factors; that reciprocating piston rods are easier to pack than rotating shafts; that extra-deep boxes are not always the most effective; and that new rings should not be added to packing that has lost its resilience. Much other valuable information is included.

Bulletin S-147 is issued by Taber Pump Company, Dept. CP, 228 Elm St., Buffalo 3, N.Y. When inquiring specify CP 1882 on handy form, pages 2 and 3.

NOVEMBER, 1950



**They look
the same now
...the difference
shows up later!**

The top photo shows a group of Monel* fastenings. The lower, ordinary fastenings. Obviously, there's scant difference in appearance. The big difference is in performance!

The Monel fastenings are stronger, tougher, more ductile. They stand heat or sub-zero cold. They're 100% rustless. They resist corrosion by salt water, caustics, most acids. And they keep their good looks.

More information? Write to Bob Johnson of Inco about your problem.

*Reg. U. S. Pat. Off.



INTERNATIONAL NICKEL COMPANY, INC., 67 Wall Street, New York 5, N. Y.

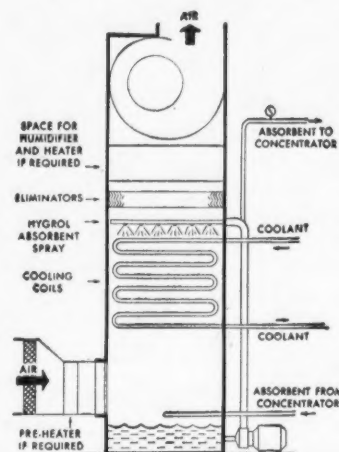
When inquiring check CP 1883 on handy form, pgs. 2-3

How You Save with the NEW Niagara Method of Air Conditioning

Using "Hygrol" Hygienic Absorbent Liquid

Because it absorbs moisture from the air directly, the new Niagara Controlled Humidity Method uses less, or no, mechanical refrigeration for dehumidifying. You save first costs and installing of heavy machinery. You save space, maintenance expense, power. You get easier, more convenient operation.

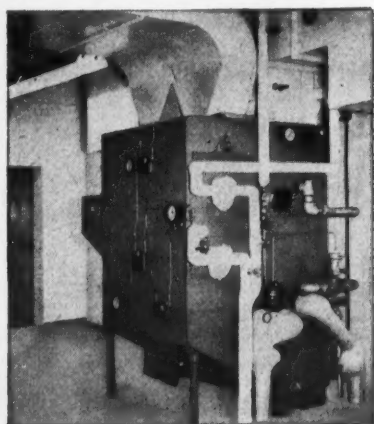
Using "Hygrol" hygienic absorbent liquid, this method gives complete control of temperature and relative humidity. Especially, it is a better way to obtain dry air for drying processes, packaging hygroscopic materials, preventing



NIAGARA CONTROLLED HUMIDITY METHOD — FLOW DIAGRAM



Food Packaging under Controlled Humidity



Niagara Controlled Humidity Air Conditioner

moisture damage to metals, and obtaining better quality for chemical process products and food products—or in obtaining better results in comfort air conditioning for office or laboratory at lower refrigeration costs.

The diagram shows how filtered air is dehumidified by passing thru a spray of "Hygrol"—a liquid absorbent which removes air-borne moisture. This liquid is hygienic and non-corrosive; it contains no salts or solids to precipitate and cause maintenance troubles. It is continuously re-concentrated at the same rate at which it absorbs moisture, providing always the full capacity of the air conditioner, automatically.

Units provide a range of capacities from 1000 to 20,000 C. F. M. Multiple unit installations are in use successfully. Records of results are available. For further information, write Niagara Blower Co., Dept. CP 405 Lexington Ave., New York 17, N. Y.

When inquiring check CP 1884 on handy form, pgs. 2-3

PROCESSING EQUIPMENT

Goggles with green lens protect against glare and flying particles . . .

1-piece lens also fits into maker's spectacle frames

Uses: Plastic safety goggles offer protection against acid splashes, dusts, flying objects, and glare.

Features: Lenses are tinted green, or are offered colorless where glare is not a problem. In addition, lenses are interchangeable with maker's safety goggles and his safety spectacles.

Description: Frame is of soft Vinyl, which is not affected by acids or alkalis. It is firm but pliable enough to form a tight seal against



Lens of plastic safety goggle can be replaced

face. Four types of ventilation are available, and goggles will fit over personal glasses.

Source: "Saf-I-Duo" goggles are made by United States Safety Service Co., Dept. CP, Kansas City 6, Mo. . . or for more information check CP 1885 on handy form, pages 2 and 3.

Variable-speed drives listed in 88 pages

Line of variable-speed drives are listed and described in 88-page book. Available in 8 sizes and 16 types, drives come in horsepower from 1/2 to 25. Control is manual or automatic.

Special feature of book is 36 pages of tables from which a drive of the proper specifications for specific service may be directly selected. Other features include diagrams of automatic speed control applications and many photographs of drives in industrial applications.

Book 2274 is issued by Link-Belt Company, Dept. CP, 307 N. Michigan Ave., Chicago 1, Ill. When inquiring specify CP 1886 on handy form, pages 2 and 3.

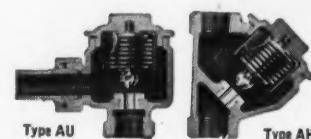
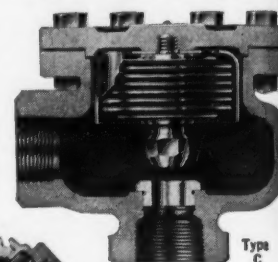
Large Processor Achieves

MORE UNIFORM HEATING CYCLES

with Nicholson Steam Traps

The positive action of Nicholson traps was recently used successfully by a chemical maker to smooth out the heating cycles of cookers at 50 to 60 minutes, against previous periods up to 105 minutes. Steam flow was upped to 3000 lbs. an hour against 2000 for the previous mechanical type.

5 TYPES FOR EVERY APPLICATION, process, heat power. Sizes 1/4" to 2"; pressure to 225 lbs. Send for Bulletin 450.



BULLETIN 450 or see Sweet's

W. H. NICHOLSON & CO. 181 OREGON STREET WILKES-BARRE • Pa.
Sales and Engineering Offices in 53 Principal Cities

When inquiring check CP 1887 on handy form, pgs. 2-3

Chemical Resistant RUBBER PARTS

FEATURE LONG SERVICE LIFE UNDER HIGHLY CORROSIVE CONDITIONS

Excellent resistance to chemicals, both concentrated and diluted, is featured by custom rubber parts fabricated from new specially-compounded stocks developed by The Stalwart Rubber Company. These new stocks are recommended for applications in which parts are subject to aniline, acetone, ethyl chloride, and numerous other chemicals.

Stalwart's special compounds also feature high resistance to animal fats, vegetable oils, ozone, oxygen, acids, alkalis, steam, extreme weathering, sunlight and dry heat.

Rubber parts made from these compounds have outstanding flex and abrasion resistance; dielectric properties make them suitable for use in electrical equipment.

The Stalwart Rubber Company is prepared to mold, extrude, and die-cut custom rubber parts in limited or production quantities from special or standard stocks. Recommended applications include seals and stoppers for chemical containers, gaskets and washers for systems handling highly corrosive acids or alkalis, tubing for installation in corrosive atmospheres or for conveying diluted or concentrated chemicals.

Write for complete specifications today.

Specify Stalwart for Quality Custom Rubber Products
STALWART RUBBER COMPANY
146 NORTHFIELD ROAD
BEDFORD, OHIO

When inquiring check CP 1888 on handy form, pgs. 2-3

CHEMICAL PROCESSING

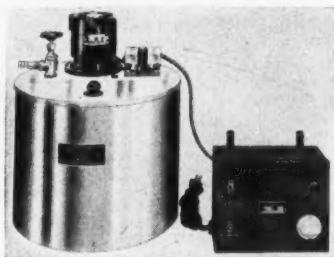
PROCESSING EQUIPMENT

Constant temp bath converts for circulation of liquids through other apparatus . . .

maintains constant liquid temp within plus-minus 0.03°C; capacity is 3 gal

Uses: For circulating liquid of precisely controlled temperature through external apparatus such as refractometers, polarimeters, viscometers, spectrometers, incubators, and similar devices.

Features: Easily converted from self-contained bath to a means for circulating liquid through other apparatus merely by connecting hose and turning a valve. All parts except the control box are contained in one unit. Bath liquid is maintained constantly within plus or minus 0.03°C. All immersed metallic surfaces are made of nickel plated brass or copper, or of stainless steel. Large pump capacity insures constancy of temperature in external apparatus. Low voltage (6 v dc) protects operator against harmful electrical shock.



Dual purpose bath

Description: Bath consists of a well-insulated stainless steel tank, a large capacity circulating pump and stirrer, electric heaters, either a mercury or a bimetal thermostat, and an external control box which may be mounted on table or wall. A 3-heat switch permits a choice of 125, 250, or 500 watts input to heater. Front half of cover can be removed easily for convenient access when the assembly is operated as a constant temperature bath. Inlet and outlet hose nipples are provided for connection to external apparatus, and a valve is provided to control external circulation flow rate.

Temperature of bath is held constant within plus or minus 0.03°C at any temperature from 6°C above ambient to 95°C if water is used. By using a cooling coil in the bath, minimum temperature can be maintained at approximately 6°C below ambient.

Liquid capacity of bath is three gallons. Overall dimensions: 13 1/2" diameter by 16" height.

Source: Dual purpose bath is made by American Instrument Co., Inc., Dept. CP, 8030 Georgia Ave., Silver Spring, Md. . . or for more information check CP 1839 on handy form, pages 2 and 3.

Capacity of pumps changed while in operation

Capacities of diaphragm pumps described in 8-page bulletin may be changed to suit changing conditions without stopping pump's operation. Primary purpose of pumps is to regulate and control the flow of thickened or high specific gravity pulp. Lifting or elevating of pulp is secondary. Pump sizes are from 2 to 6"; maximum capacity of 6" size while handling 60% solids at 4.2 specific gravity, is 3140 tons per day.

Pumps are shown regulating thickener underflow, metering flotation feed, and pumping filtrates. Bulletin P8-B7 is issued by Denver Equipment Co., Dept. CP, 1400 17th St., Denver 17, Colo. When inquiring specify CP 1890 on handy form, pages 2 and 3.

FREE



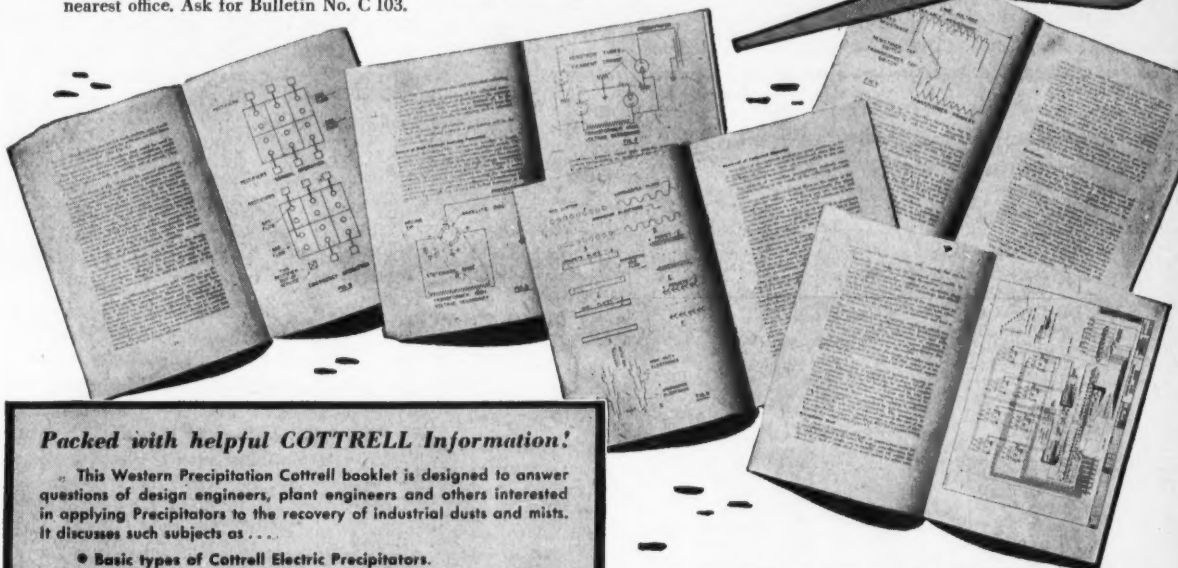
From Western Precipitation—the organization that pioneered the commercial application of Cottrell Precipitation . . .

IF YOU ARE ENGAGED in any phase of industry where the recovery of dusts, fumes, fly ash, mists, fogs or other suspensions from gases is a problem, you will find this booklet on the COTTRELL Electrical Precipitator helpful and informative.

Western Precipitation pioneered and installed the first commercial application of the well-known COTTRELL Electric Precipitator—Dr. Cottrell, the inventor, being a member of the company. And for more than 42 years Western Precipitation has consistently led in developing new COTTRELL advancements and techniques for recovering suspensions from gases, both wet and dry.

This 28 page booklet summarizes many of the basic facts you should know about modern COTTRELL Precipitators—the various types available, how they operate, principal types of electrode systems and rectifiers, shell constructions, etc. As long as the supply lasts, a free copy will be sent you on request to our nearest office. Ask for Bulletin No. C 103.

28 PAGES
of helpful facts to
know about
COTTRELL
ELECTRICAL
PRECIPITATORS



Packed with helpful COTTRELL Information!

This Western Precipitation Cottrell booklet is designed to answer questions of design engineers, plant engineers and others interested in applying Precipitators to the recovery of industrial dusts and mists. It discusses such subjects as . . .

- Basic types of Cottrell Electric Precipitators.
- Principal parts of a Cottrell Precipitator.
- Mechanical and Electronic Rectifiers.
- Various types of Collecting Electrodes (rod curtains, corrugated plates, dual plates, pocket electrodes, etc.).
- Removal of Collected Material.
- Factors in Shell Construction (steel, concrete, brick, etc.).
- Operating Efficiencies and the Effect of Various Factors on Performance.

. . . and many other basic Cottrell facts. Write for your free copy of Bulletin C103 today while supplies are adequate!

NOW SELLING

COTTRELL
Precipitators
MULTICLONE
Collectors
TURBULAIRE
Spray Dryers

...in all parts of the U.S.A. and foreign countries.

Western Precipitation is not affiliated with any other company in the field of electrical precipitation except its wholly owned subsidiaries, International Precipitation Corporation and the Precipitation Company of Canada, Ltd. Whether you are now contemplating the installation of a Cottrell Electrical Precipitator, or may be interested in such an installation at a future date, we can and will serve you in any part of the United States or other countries.

WESTERN
Precipitation
CORPORATION

ENGINEERS, DESIGNERS & MANUFACTURERS OF EQUIPMENT FOR
COLLECTION OF SUSPENDED MATERIALS FROM GASES & LIQUIDS

Main Offices: 1023 WEST NINTH STREET, LOS ANGELES 15, CALIFORNIA
CHRYSLER BLDG., NEW YORK 17 • 1 LaSALLE ST. BLDG., 1 N. LaSALLE ST.,
CHICAGO 2 • HOBART BUILDING, SAN FRANCISCO 4, CALIFORNIA
PRECIPITATION CO. OF CANADA, LTD., DOMINION SQ. BLDG., MONTREAL

When inquiring check CP 1891 on handy form, pages 2-3

IRON BULWARK

AGAINST CORROSIVE FLUIDS

Fairbanks® all iron gate valves

...are made of high-test alloy iron to withstand the action of many of the strongest chemicals such as concentrated sulfuric acid, alkalis, aniline oils, sodium and potassium cyanides and creosote. These iron body valves give long service under the severe operating conditions that exist with use of these destructive agents.

Fairbanks All Iron Gate Valves—like those in all Fairbanks lines—are low in maintenance cost, easy to operate and long-lasting in service... a real answer to cost-cutting needs today.



Fig. 0318
ALL IRON GATE VALVE
150# SWP 225# WOG
Non-Rising Stem • Solid
Wedge • Taper Seat
½" - 2" Sizes

Fig. 0904
ALL IRON GATE VALVE
125# SWP 200# WOG
Solid Wedge • Taper Seat •
Malleable Iron Seat Rings
2" - 12" Sizes



Fig. 0418
IRON BODY U-BOLT
GATE VALVE
150# SWP 225# WOG
Bronze Mounted • All
Iron Rising Stem • Solid
Wedge • Taper Seat
½" - 4" Sizes

For handling other types of corrosive fluids such as dry carbon dioxide, ethyl acetate, malt beverages, propane and butane gas use FAIRBANKS BRONZE SOLDER END and FAIRCO-BRAZE (silver-brazed) VALVES.

For full details consult your distributor or write direct.

THE

Fairbanks

COMPANY

393 LAFAYETTE STREET • NEW YORK 3, N. Y.
Branches: New York 3 • Pittsburgh 22 • Boston 10 • Rome, Ga.

CASTERS • TRUCKS • VALVES • DART & PIC UNIONS

When inquiring check CP 1892 on handy form, pgs. 2-3

PROCESSING EQUIPMENT

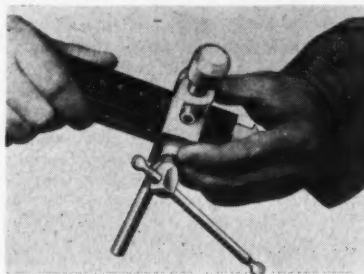
**Redesigned tube flarer
provides improved
service . . .**

changes in established model
give better life and action

Uses: Tool for flaring tubes.

Features: Several design changes have lengthened service life of tool and improved its functioning.

Description: Tool combines flaring pin in vise slide on split die block having a series of holes to accommodate ¼, 5/16, ¾, ½, and ¾" tubing.



Improved tube flaring tool

Changes include hardening of die blocks; adding of black wrinkle protective coating; lengthening flaring pin point; and modifying vise screw nose and handle.

Source: Model 410 tube flaring tool is made by The Parker Appliance Company, Dept. CP, 17325 Euclid Ave., Cleveland 12, O. . . or for more information check CP 1893 on handy form, pages 2 and 3

**Multiple outlet boxes
work under water . . .**

each of the 5 outlets is rated
at 1500 watts, 115 volts

Uses: Waterproof outlet box for multiple power outlet service.

Features: Each of the 5 outlets is rated at 1500 watts, 115 volts; inlet will carry 6000 watts, 115 volts.

Description: Wiring from inlet to outlet receptacles is symmetrical. AC or DC lines. Mounting is through four feet on either grounded or ungrounded metal surfaces.

Each receptacle is provided with a weatherproof and waterproof screw-on cap which is attached to box body by a short chain to prevent loss. When used with maker's connectors, unit will operate when submerged in water.

Source: Type 6005 outlet box is a product of Equipment and Service Company, Dept. CP, 6815 Oriole Drive, Dallas 9, Tex. . . or for more information check CP 1894 on handy form, pages 2 and 3.

DRY AIR
Costs Money
LOOK AT
This →



The cracked, worthless shoe sole at the left was made from dried out leather. At the right—perfect and pliable, thanks to Armstrong Humidifiers.



DRY AIR will pick up moisture from hygroscopic materials causing weight loss and deterioration. This is far more expensive than installing Armstrong Steam Humidifiers to maintain the proper moisture content of the materials you are processing. Dry air causes static electricity—often a production nuisance, frequently a dangerous fire hazard. Dry air reduces worker efficiency, causes respiratory disorders. Armstrong Steam Humidifiers are the answer! As low as \$120 list to humidify 40,000 cu. ft. Less than one cent per day operating cost per 1,000 cu. ft. Automatic, trouble free, accurate.

Ask for educational BULLETIN 1771 for complete data. ARMSTRONG MACHINE WORKS, 880 Maple St., Three Rivers, Michigan.

ARMSTRONG Steam HUMIDIFIERS

Easy to Install and Maintain . . . Automatic . . . Economical

When inquiring check CP 1895 on handy form, pgs. 2-3

BRIEFS...

*from contemporary
publications*

READ THEM . . . IN THIS ISSUE

You get a "quick look" at the most valuable articles being published in this field, and kindred fields . . . by reading the "BRIEFS" section of CHEMICAL PROCESSING every month.

Our Editors read more than 50 contemporary publications every month . . . select those articles they believe you will want to know about . . . and, in terse style, they tell you about them. Name of publication and issue are given so you can read those you want to know more about.

It's a monthly service . . . to save you time . . . yet keep you informed. See "BRIEFS" in this issue, page 76.

PROCESSING EQUIPMENT

Resistance to all industrial solutions is feature of filter pump . . .

electroplating and other industrial solutions are filtered and pumped at rates to 100 gph

Uses: For filtering and pumping industrial solutions at rates to 100 gph and temperatures to 200°F.

Features: Unit offers complete resistance to all industrial solutions.

Description:

Pump is of stainless steel. Filter is 1-quart Lucite cylinder filled with cotton yarn wound around stainless steel supporting core; it can be washed or back-washed when needed. Unit takes less than 1 minute to put into operation.

Source: Model LSI-10 filter pump is made by Sethco, Dept. CP, 105-07 150th St., Jamaica 4, N. Y. . . or for more information check CP 1896 on handy form, pages 2 and 3.



Pump and filter unit

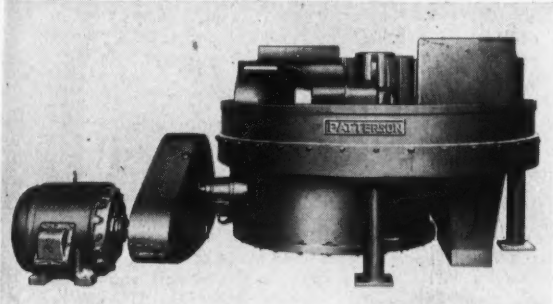
Both reduction and refining are done in stages in plasticizing pan . . .

designed primarily for phosphate fertilizer work, pan has applications in general processing

Uses: Plasticizing pan designed primarily for the phosphate fertilizer industry, but applicable to many types of reduction and refining.

Features: Pan will handle practically any raw material in a dry, moist, or plastic state.

Description: Mixing and plasticizing are done by stages. First stage is near the center of pan, where material enters;



Plasticizing pan handles practically any material

when thoroughly mixed, material passes from one chamber to another where plasticizing is completed. Discharge is from bottom of pan. Sizes up to 10' are available.

Source: Plasticizing pan is made by The Patterson Foundry & Machine Company, Dept. CP, East Liverpool, O. . . or for more information check CP 1897 on handy form, pages 2 and 3.



Alcoa Heat Exchanger News



PUBLISHED BY THE ALUMINUM COMPANY OF AMERICA

HOW TO SAVE UP TO 80% ON TUBES

You can prove this to yourself. Check your local supplier—get his prices for tubes of all other metals—then compare with Alcoa Aluminum Tube prices at the retail level. Foot for foot, metal for metal, you'll find Alcoa Tubes cutting your costs 30%, 50%, even 80%—depending on the type of tubes you now use. Many medium-sized chemical plants save \$50,000 every year by switching to Alcoa Tubes.

Alcoa Tubes safely process hundreds of hard-to-handle chemicals. They protect the purity of products like naval stores, vegetable oils—won't downgrade or decompose unstable compounds like hydrogen peroxide. Records of 15, 20 even 25 years' continuous use are not unusual for Alcoa Tubes in chemical plants. Many of these case histories are available for your inspection.

Alcoa Tubes allow you a wide range of operating temperatures. They easily handle steam up to 400°F. They increase in strength and show no evidence of embrittlement as temperatures drop to -320°F and below. Using Alclad Tubes, you'll have no problems from cooling waters.

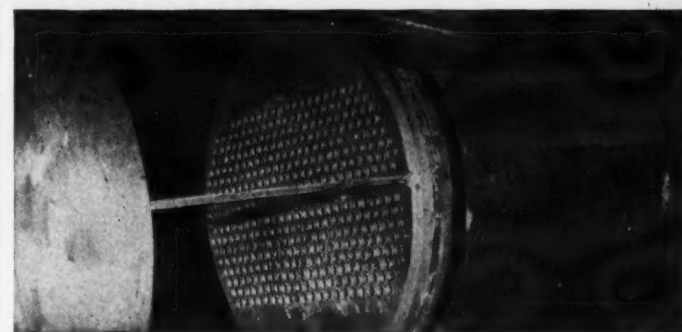
Roll-in and other fabrication go faster with Alcoa Tubes. Your present tools and techniques will do the job. Aluminum is easy to machine and to weld.

For complete information and the name of your nearest supplier, call your local Alcoa sales office. Or write: ALUMINUM COMPANY OF AMERICA, 1491L Gulf Building, Pittsburgh 19, Pennsylvania.



ALCOA OFFERS NEW BOOK

This new, 24-page booklet will answer many of your questions about Alcoa Tubes. It covers fabrication techniques . . . alloy selection . . . applications both chemical and petroleum. It describes tube cleaning, the use of inhibitors and methods of cathodic protection. It contains complete information on fluid flow and heat transfer characteristics, plus tables of physical properties and specification data. Write for your free copy, today. ALUMINUM COMPANY OF AMERICA, 1491L Gulf Building, Pittsburgh 19, Pennsylvania.



An all-aluminum heat exchanger for tonnage oxygen plant—designed and built by Stacey Bros. Gas Construction Co.

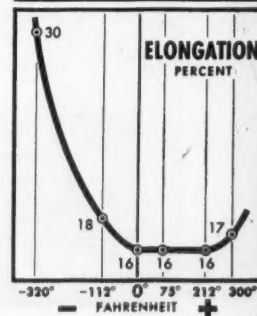
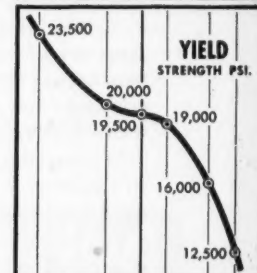
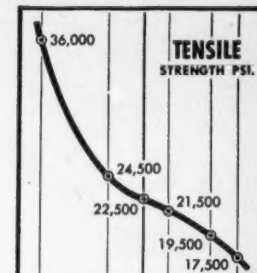
ALUMINUM TUBES EXCEL IN SUB-ZERO PROCESSING

When your process calls for temperatures down to -320°F—and your service conditions call for utmost strength—specify Alcoa Tubes. 3S alloy, for example, improves 67% in tensile strength, 23% in yield strength and more than 80% in elongation as temperatures drop from 75°F to -320°F.

Alcoa Tubes resist corrosion by a vast number of organic and inorganic chemicals. The high thermal conductivity of aluminum increases the efficiency of many types of exchangers and condensers. And best of all, they cost far less to buy and fabricate than any other suitable metals.

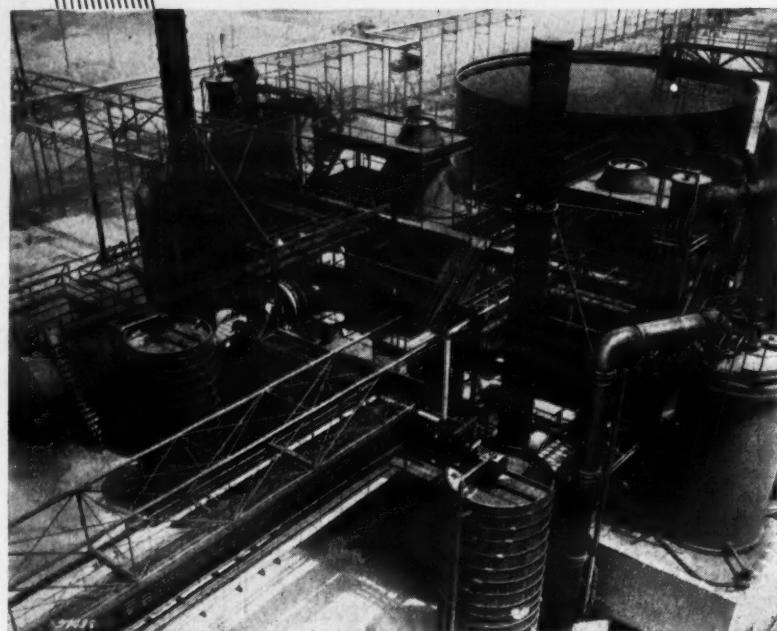
Complete information is available on Alcoa Tubes for tonnage oxygen, natural gas liquefaction, nitrogen removal, dewaxing, propane chilling, ethylene extraction and many other low-temperature processes. Call your local Alcoa sales office or write: ALUMINUM COMPANY OF AMERICA, 1491L Gulf Building, Pittsburgh 19, Pa.

These three graphs show the amazing increase in tensile properties of aluminum as temperatures drop below zero.



When inquiring check CP 1898 on handy form, pgs. 2-3

Haveg Processing Equipment gives you Thorough Protection!



• **THOROUGH PROTECTION** is your greatest asset when you specify Haveg corrosion resistant processing equipment. Haveg is not a lining—not a coating—but a corrosion resistant structural material throughout its entire mass.

It is strong, light in weight, has a low coefficient of expansion, withstands thermal shock and can be used continuously at temperatures as high as 265° F.

For efficient, safe, trouble-free handling of practically all acids, bases, salts, chlorine and solvents—standardize on Haveg processing equipment for thorough protection. Get all the details now—write for your copy of the new 64-page Haveg Bulletin F-6.

HAVEG CORPORATION
NEWARK 7, DELAWARE
FACTORY: MARSHALLTON, DEL. • TEL. WILMINGTON 3-8884

CHICAGO 11	CLEVELAND 14	HARTFORD	HOUSTON 8	INDIANAPOLIS 11	LOS ANGELES 14	SEATTLE 1
1001 Parkview Bldg.	510 Grand Bldg.	111 Parkington Ave.	4401 Mainline Bldg.	1810 E. 12th Ave.	500 W. 10th St.	1000 1st Ave.
CHICAGO 1-8786	CHICAGO 1-7787	NATICK 64750	HOUSTON 7-8045	MARTIN 7310	MILWAUKEE 4555	SEATTLE 1-1000

When inquiring check CP 1899 on handy form, pgs. 2-3

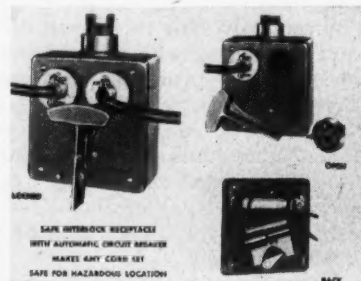
PROCESSING EQUIPMENT

Can't remove plugs from electrical receptacle while current flows . . .

flip of safety lever breaks circuit, allows removal of plugs

Uses: Electric outlet receptacle for hazardous locations.

Features: Receptacle incorporates a safety lever which locks cord caps securely in receptacle, making it im-



possible to remove cord while current is flowing. A flip of the lever breaks the circuit, and allows removal of plugs from socket.

Description: Interlock receptacles are available in capacities up to 20 amperes. Standard flush-type single or duplex styles are offered for use with any conventional cord cap.

Source: Panellit, Inc., Dept. CP, 7218 N. Clark St., Chicago 26, Ill., is the maker . . . or for more information check CP 1900 on handy form, pages 2 and 3.

Flexibility main feature of high-pressure spray hose . . .

weighs 26 lb/100'; burst minimum is 3000 psi

Uses: Spray hose is suitable for working pressures up to 800 pounds.

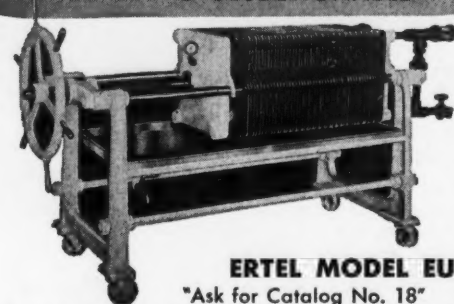
Features: Unusually good flexibility is provided by one braid of nylon instead of the conventional multiple braids of rayon and cotton. It is light in weight, weighing only 26 pounds per 100 feet. Strength is shown by the fact that it will not burst below 3000 psi pressure.

Manufacturer reports stretch and swelling have been virtually eliminated.

Description: High-pressure hose has a chemical- and oil-resistant tube, 1 braid of nylon, and a smooth neoprene cover. Offered in 1/2" ID.

Source: Product of Pioneer Rubber Mills, Dept. CP, 345-353 Sacramento St., San Francisco 11, Calif. . . . or for more information check CP 1901 on handy form, pages 2 and 3.

HARD RUBBER FILTERS
THE ANSWER TO THE ELIMINATION OF METALLIC PICKUP & FOR USE WHERE LIQUID TO METAL CONTACT IS OBJECTIONABLE



ERTEL MODEL EUR

"Ask for Catalog No. 18"

Capacities: 10 disk to 100 hard rubber. Special hard rubber disk units with range from 5 to 50 gpm. All parts in contact with liquid are high grade hard rubber. Special hard rubber frames eliminate breakage of filter sheets and provide positive seal without gaskets.

ERTEL SERVICE: Send sample of your product for laboratory test. We will filter and return with enough recognized Ertel Asbestos Filter Sheets to prove the superior results in your plant.

ERTEL ENGINEERING CORPORATION
KINGSTON NEW YORK

Representatives in Principal Cities

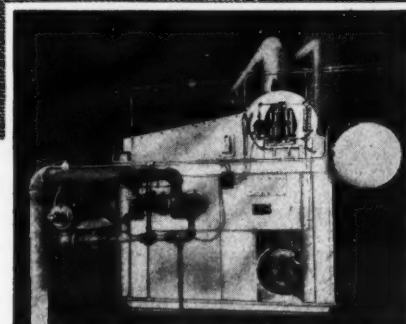
MANUFACTURERS OF HIGH GRADE ERTEL ASBESTOS FILTER SHEETS ASBESTOS SHEET FILTERS • CYLINDER TYPE DISC FILTERS PYROGEN FILTERS • VACUUM BOTTLE FILTERS • MIXERS • CAPERS CENTRIFUGAL AND SELF-PRIMING STAINLESS STEEL PUMPS



When inquiring check CP 1902 on handy form, pgs. 2-3

UNION PROCESS EQUIPMENT

Dowtherm Vaporizers



UNION Dowtherm Vaporizers designed and built in a wide range of sizes to meet user requirements. 2 Drum unit shown here is typical 2,000,000 BTU per hour at 700°F. Can be shipped factory assembled. Larger sizes must be field erected. Write for bulletin 124.

UNION

PROCESS EQUIPMENT

UNION IRON WORKS
Since 1890
650 CASCADE ST. ERIE, PA.

When inquiring check CP 1903 on handy form, pgs. 2-3

CHEMICAL PROCESSING

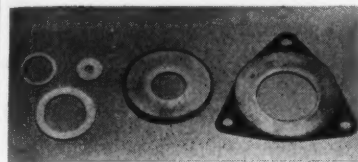
PROCESSING EQUIPMENT

Teflon construction lends resistance to gaskets . . .

withstand attacks from 200 different strong acids, caustic alkalis, and solvents

Uses: Gaskets, built of or jacketed with Teflon, for applications involving any acid or caustic alkali; doesn't withstand molten sodium and fluorine. Wide use in the chemical, leather, paper, paint, and petroleum fields.

Features: Gaskets have been extensively field-tested for the past year.



Typical Teflon gaskets. Three at left are solid; others are jacketed

Description: Available in hard, medium, and soft grades, gaskets are suitable for all metal or non-metallic flanges. They are produced in all

sizes from 1/2 to 6" ID for ASA or special flanges. Company maintains technical service on design, sizing, and specifications of gaskets to meet individual requirements.

Source: "Korda" gaskets are made by Chicago Gasket Company, Dept. CP, 1275 W. North Ave., Chicago 22, Ill. . . . or for more information check CP 1904 on handy form, pages 2 and 3.

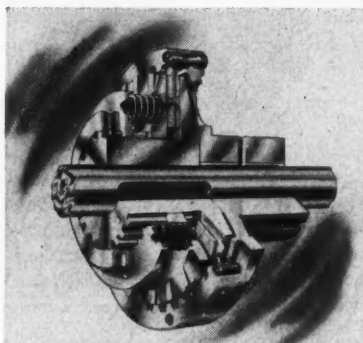
Maintains constant torque or constant tension in winding operations . . .

slip clutch also used as safety device for overload protection; has torque range to 10,000 ft-lb

Uses: Slip clutch for maintaining constant tension or constant torque on winding operations. Has application in printing, paper making, plastics, and textile industries. Also used as a safety device for overload protection or to maintain constant torque regardless of driving speed.

Features: Clutches have torque range to 10,00 foot-pounds and heat capacity to 8 1/2 hp.

Description: Units have cooling fins, pressure springs with long deflection range for accurate adjustment, and one, two or three ventilated plates. When used to maintain tension, clutch has adjusting nut replaced with a sliding collar to permit adjustment while unit is in operation. Size ranges from 2-3/8" to 27" diameter. Models designed to fit in a small space have a disc spring and metallic friction plates.

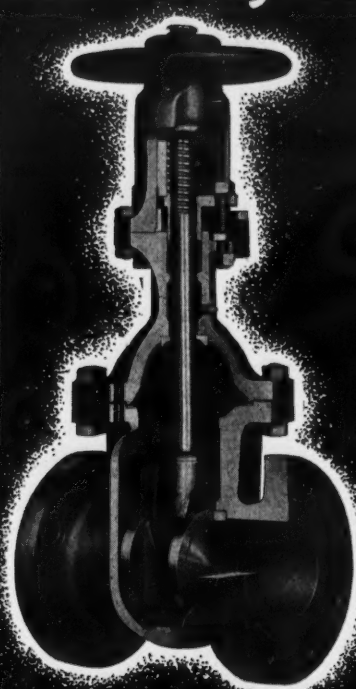


Clutch maintains constant torque regardless of driving speed

Parts are made of iron or aluminum castings and steel; exposed parts can be cadmium plated for resistance to corrosion.

Source: Hilliard Corporation, Dept. CP, Elmira, N. Y. . . . or for more information check CP 1905 on handy form, pages 2 and 3.

How Darling features prevent trouble and expense



EXTREME SIMPLICITY



THAT'S all there are—just four simple, sturdy parts—two plain interchangeable no-pocket discs and two husky wedges.

Note particularly that the discs are completely free of pockets. Sediment and scale cannot collect to interfere with their free movement. No links or other devices are needed to hold the discs and wedges together. Any part can be quickly and inexpensively replaced without removing valves from the line. Parts cannot be incorrectly assembled nor become disengaged while in service. Operation and maintenance are equally simple.

Darling valve users are money ahead because of the exceptional service made possible by the ingenious simplicity of the Darling design. These advances, coupled with Darling's modern precision manufacturing methods and advanced metallurgical practice, offer you valve performance at its finest . . . and at the lowest cost. Next time give Darling a try!

DARLING VALVE & MANUFACTURING CO.

WILLIAMSPORT 4, PA.

*This advertisement is one of a series showing how the unique Darling Fully Revolving Double Disc Parallel Seat Gate Valves answer the following critical operating problems:

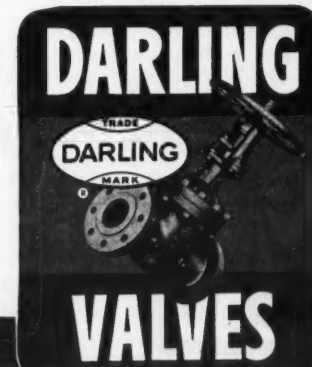
- Positive, easy closing—regardless.
- Automatic adjustment for valve body distortion.
- Elimination of disc-to-seat friction and galling.
- Uniform wear distribution.
- Extreme simplicity.
- Greater service life.
- Simplified maintenance.

CORROSION RESISTANT VALVES

In addition to conventional iron, bronze and steel constructions, Darling specializes in valves for any corrosive fluid: iron body valves with special alloy trim; iron body, rubber lined, with special alloy trim; all bronze; and all special alloy. Darling's 50 years of experience in meeting unusual requirements is always at your service.

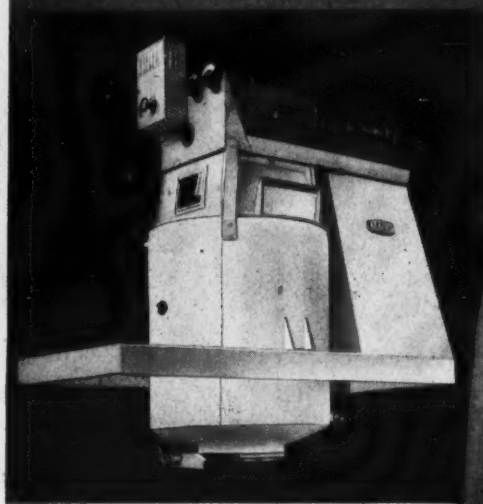
Outline your service requirements and get complete information on Darling Valves of the proper type. Or, send for the complete 300-page Darling Catalog No. 17M. It describes Darling Valves of all types for every normal or unusual service, and for pressures up to 1500 pounds. It's full of helpful information . . . Yours for the asking.

THE VALVE MARK OF QUALITY . . . WATCH FOR IT



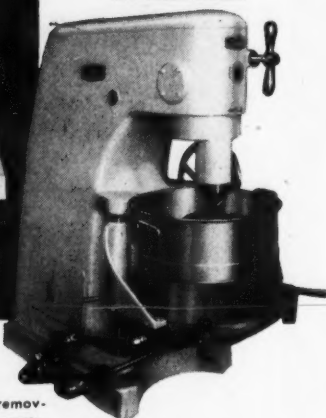
When inquiring check CP 1906 on handy form, pgs. 2-3

Readco Vertical Mixers Provide Thorough Mixing With Planetary Action!



Readco Vertical Mixing Tanks are supplied with stationary tank capacities of from 50 to 1000 gallons.

READCO
CHEMICAL
EQUIPMENT



Readco Vertical Mixers are supplied with removable bowl capacities of from 12 to 175 quarts.

Controlled stirring and mixing action avoids costly unmixed volume

Readco Planetary Action, Vertical Mixers and Vertical Mixing Tanks provide controlled stirring and mixing action throughout the whole batch, eliminating "dead spots" and columns of unmixed materials.

Both Readco Vertical Mixers and Mixing Tanks are supplied in single, multiple, or variable speeds for efficient handling of varied mixing problems. Units can be supplied with stainless steel bowls and beaters.

Vertical Mixers accommodate several sizes of removable bowls and are particularly adapted to the processing of dry materials, creams, emulsions, and light plastic masses. Water jackets, bowl scrapers, splash and fume hoods are available. Convenient spring lock holds beater to driving head.

The Vertical Mixing Tank is designed for larger batches and is equipped with a liquid-tight discharge gate in the bottom. Available with high-pressure jackets and various mountings.

NOW . . . continuous mixing! Readco offers continuous as well as batch mixers. Write for complete details.

Literature and prices on Readco Vertical Mixers and Vertical Mixing Tanks available upon request.

READ

READ MACHINERY DIVISION
of The Standard Stoker Company, Inc.
YORK 7, PENNSYLVANIA

When inquiring check CP 1907 on handy form, pgs. 2-3

PROCESSING EQUIPMENT

**No gloves are needed
if holder is used
on beaker . . .**

hot or corrosive liquids cannot
spill on hands

Uses: —Holder for 1000, 1500,
and 2000 ml beakers.

Features: Technician need wear
no gloves, as he only touches holder
handles. Hot or corrosive liquids
cannot spill on hands.

Description: Made of 18/8 stain-
less steel with insulating fiber handles.



Holder protects hands from con-
tents of beaker

Rigidity of holder permits attachment
to ring stand, minimizes vibration
during stirring, and protects beakers
from shock.

Source: Holder is made by Will
Corporation, Dept. CP, Rochester 3,
N. Y. . . . or for more information
check CP 1908 on handy form, pages
2 and 3.

**500,000 actuations
from small size
snap switch . . .**

longest dimension is 7/8" on this
3 amp, 125 volt model

Uses: Small snap switch for con-
densed timing and sequence opera-
tions involving currents to 3 amps,
voltages to 125.

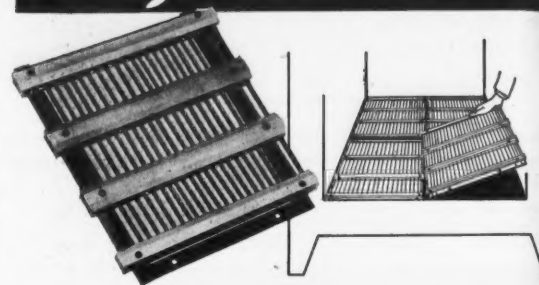
Features: Extremely small size.
Largest dimension is 7/8".

Description: This is an open blade
switch utilizing rolling spring prin-
ciple. Contact arms and blades are
held between molded FM-10001 nylon
or melamine side members secured
by eyelets for No. 1 mounting screws.

Contact points are silver, 99.7%
pure. Rated capacity life is 500,000
actuations.

Source: Model M-OM switch is
made by Acro Switch Division, Acro
Mfg. Company, Dept. CP, Columbus
16, O. . . . or for more information
check CP 1909 on handy form, pages
2 and 3.

Easy to Install!



TRENT "Folded-and-Formed" ELECTRIC HEATING ELEMENTS

New standard racks permit
"Folded-and-Formed" Heat-
ing Elements to be quickly,
easily installed — horizon-
tally or vertically — in all
types of equipment. Drilled
for mounting. Can be ar-
ranged to give from 1.5
KW. to 300 KW. at **New**
low cost. **FIVE YEAR**
GUARANTEE, at tempera-
tures to 750° F. or 1350° F.

Send for Bulletin 80-T, de-
scribing "Folded-and-
Formed" Elements, in new
standard racks, and their
many applications for effi-
cient, low-cost heating.

TRENT INC
Electrically Heated Industrial Equipment
235 LEVERINGTON AVE. PHILA 27 PA

When inquiring check CP 1910 on handy form, pgs. 2-3



**INDIVIDUAL
STEAM
TRAPPING**
(A Trap on
every coil)

**SARCO
No. 9**

**Gets more heat out of the steam and more production
out of steam equipment. The inexpensive, highly efficient
trap that gives quick starts because it's wide open when
cold. Capacities recently doubled. Can't freeze. No seat
changes required when pressure changes. Catalog No. 250.**

SARCO
SAVES STEAM

SARCO COMPANY, INC.
Represented in Principal Cities
Empire State Building, New York 1, N. Y.
SARCO CANADA, LTD., TORONTO 5, ONTARIO

IMPROVES PRODUCT QUALITY AND OUTPUT

When inquiring check CP 1911 on handy form, pgs. 2-3

CHEMICAL PROCESSING

PROCESSING EQUIPMENT

Five times faster than hand nailing . . .

foot-operated nailer drives and countersinks nails up to 13/16" long at touch of pedal

Uses: Automatically fed, foot-operated nailer for driving and countersinking lock nails into light metal, prestwood, or hard or soft wood.

Features: Reported to be 5 times faster than hand nailing.

Maker's lock nails used with the device are said to have greater holding power than ordinary nails.

Description: Nailer has a 2-way adjustable table to handle a large variety of work. Driving mechanism is built



of tool steel. Feeding chamber holds over 100 lock nails that are supplied adhered together in one long strip. Nails are available in various sizes between 3/8 and 13/16" long, and are spear-pointed.

One touch of the foot pedal drives and countersinks the longest nail supplied. No skill or experience is required for operation.

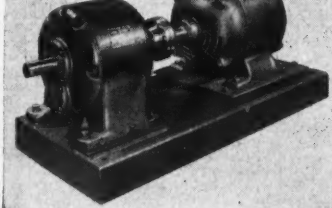
Source: The Heller Company, Dept. CP, 2153 Superior Ave., Cleveland 14, O., is the maker. . . or for more information check CP 1912 on handy form, pages 2 and 3.

Motor-gear combination is compact unit . . .

electric drive is available in wide range of speeds and horsepower

Uses: Electric drive for machinery requiring speeds below those at which electric motors can be made to operate.

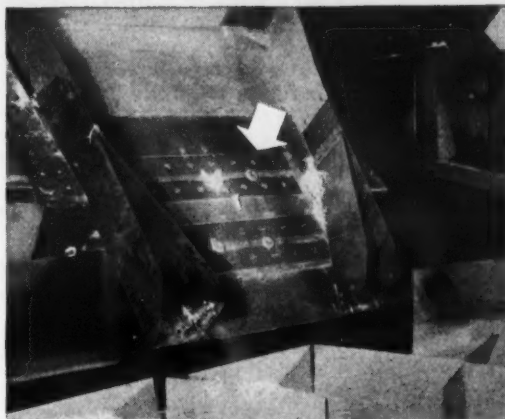
Features: Drive is available in wide range of ratios and powers to fit specific applications.



Packaged gears and motor

Models include double or triple reduction, 1 to 75 hp.

Source: Motogear is made by Link-Belt Co., Dept. CP, 307 N. Michigan Ave., Chicago 1, Ill. . . or for more information check CP 1913 on handy form, pages 2 and 3.



SPAGHETTI MAKER SAVES \$80.00 PER WEEK with two Dings 4-pole Perma-Plate Magnets to catch tramp iron formerly removed by hand. Magnets also remove iron of abrasion that formerly was not removed.



KEEPING IRON OUT OF CANDY BARS with a Perma-Plate Magnet installed in chute to remove fine iron from chocolate in liquid form.

RECORD MAKER PROTECTS DIES AND MOLDS. View shows flow of material over Alnico magnet — note bits of wire.



Here are places
where the Dings
**PERMA-PLATE
MAGNET**
can save
you money!



PREVENTING IRON DAMAGE TO GARNETT ROLLS in a bedding plant with a Dings Perma-Plate Magnet installed above the spiked apron feeder.

IF you would do away with all types of stray iron — nails, nuts, bolts, wire, etc., and its effects, whether it be product contamination . . . damage to machinery . . . or fires and explosions caused by stray iron sparks — CALL FOR THE DINGS PERMA-PLATE. A look at its report card tells why:

NON-ELECTRIC, PERMANENT. No power costs, no electrical maintenance or accessories.

POWERFUL, POSITIVE. There are 50 years of magnet design experience behind the Perma-Plate.

MAGNETIC PERMANENCE GUARANTEED. Your assurance of magnetic protection *always*.

HANDLES SOLIDS OR LIQUIDS, HOT OR COLD. Easily installed anywhere, the Perma-Plate is available in 228 different size and strength combinations to provide you with *exactly* the right magnet for the job.

Send for CATALOG C-1205-A
The Modern, Low Cost Way
To Remove Stray Iron

Complete Details on the Perma-Plate
Including Sizes and Prices. ASK FOR
THE PERMA-PLATE CATALOG.



DINGS MAGNETIC SEPARATOR CO.

4731 W. Electric Ave., Milwaukee 46, Wis.

World's Largest Exclusive Builders of Electric and Non-Electric Magnetic Separators for All Industry

When inquiring check CP 1914 on handy form, pgs. 2-3

small size . . .

Yarway Impulse Steam Trap is hardly larger than a pipe union. Easily installed *anywhere*. $\frac{1}{2}$ " trap weighs $1\frac{1}{4}$ lbs.; 2" trap only $8\frac{1}{2}$ lbs. Over 650,000 Yarway traps have been *proved on the job*. Sold by over 200 distributors. For name of nearest one, or free bulletin, write . . .

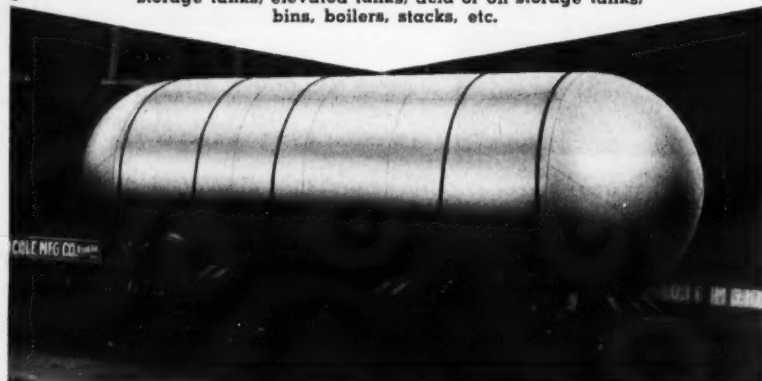
YARNALL-WARING CO.
125 Mermaid Ave., Phila. 18, Pa.

YARWAY IMPULSE STEAM TRAP

When inquiring check CP 1915 on handy form, pgs. 2-3

COLE ALUMINUM TANKS

We have available stock sizes from 9,500 to 22,800 gallons for pressure storage, and tanks of 99.6% pure aluminum for hydrogen peroxide from 5000 to 11,150 gallons. "Cole" can furnish tanks made of steel, aluminum and stainless steel — built in accordance with ASME Code — to meet all insurance requirements. We invite your inquiries for high pressure storage tanks, elevated tanks, acid or oil storage tanks, bins, boilers, stacks, etc.



R. D. COLE MFG. CO.
NEWNAN, GA. Established 1854



TANKS TOWERS CYLINDERS VESSELS

When inquiring check CP 1916 on handy form, pgs. 2-3

PROCESSING EQUIPMENT

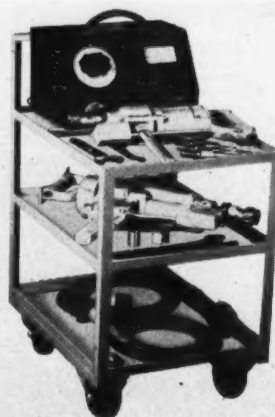
Tube expansion equipment made into mobile unit with this rack . . .

equipment kept intact and under control while being moved

Uses: Mobile rack for holding tube expansion equipment.

Features: Equipment can be moved to various plant locations as a unit, eliminating loss of parts.

Description: Rack is essentially a welded steel frame truck on which



Notice large capacity of rack

control system, extra motors, expanders, mandrels, cables, and accessory tools are placed.

Source: Tube expansion equipment rack is made by The Airetool Mfg. Co., Dept. CP, 331 S. Center St., Springfield, O. . . or for more information check CP 1917 on handy form, pages 2 and 3.

Announces preparedness for making parts, products from Teflon, Kel-F . . .

rods and tubing, molded sheets, mechanical shapes offered

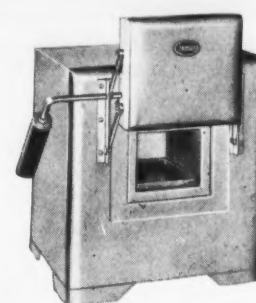
Uses: These flexible synthetic polymers are recommended for applications requiring chemical inertness, and good electrical and physical properties over a wide range of temperatures.

Features: This manufacturer is now prepared to supply parts and products made from DuPont's "Teflon", as well as from Kellogg's "Kel-F".

Description: Rods and tubing, molded sheets, and numerous mechanical shapes are being processed in a wide range of specifications.

Source: Resistoflex Corporation, Dept. CP, Belleville, N. J., is the processor . . . or for more information check CP 1918 on handy form, pages 2 and 3.

ALL-AROUND ELECTRIC FURNACE



TEMCO

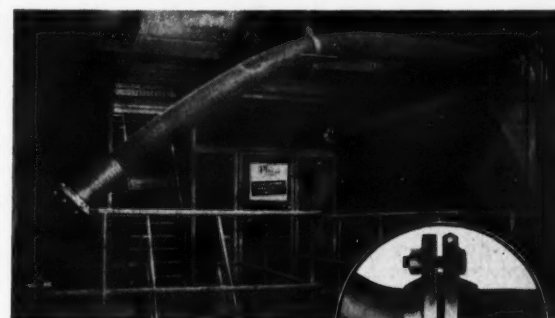
SERIES 1600 . . . for ashing, ignitions, fusions and general laboratory work

A husky bench-type electric furnace built for continuous use up to 1650° F., intermittent to 1900° F. Welded steel body $4\frac{1}{2}$ " dual insulation. Fast heating, long-life, embedded elements surround heating chamber. Uplifting door for safe, easy operation. Two chamber sizes: 5" x $4\frac{1}{2}$ " x 9" or 5" x $4\frac{1}{2}$ " x 13- $\frac{1}{2}$ ". Supplied without controls or with either TEMCOMETER stepless temperature controller and indicator, or precision electronic controlling pyrometer. Write for new handy Reference File and dealer's name.

THERMO ELECTRIC MANUFACTURING CO.

476 West Locust St., Dubuque, Iowa

When inquiring check CP 1919 on handy form, pgs. 2-3



Save 3 Ways

**SIMPLIFIED INSTALLATION
LOW MAINTENANCE • LONG SERVICE LIFE**

"GOODITE" PIPE has extreme flexibility; a tube that is highly resistant to abrasive wear and the permeation of liquids or gases; and a carcass that will not kink or collapse. For either suction or discharge. Sizes 4" to 12".

"KEMITE" DUCT has same characteristics as "Goodite", but made in smaller sizes — $\frac{3}{4}$ " to 4".

"FLANG-LOK" FLANGES. Designed to simplify installation of "Goodite" Flexible Pipe and "Kemite" Duct, and to provide a positive, non-metallic seal at all connections. Easy to attach and tighten. Steel or cast iron.

Contact our nearest branch for complete information, recommendations, and prices based on your requirements.



GOODALL RUBBER COMPANY

GENERAL OFFICES, MILLS and EXPORT DIVISION, TRENTON, N. J.
Branches: Philadelphia • New York • Boston • Pittsburgh • Chicago • Detroit • St. Paul • Los Angeles
San Francisco • Seattle • Portland • Salt Lake City • Denver • Houston • Distributors in Other Principal Cities

When inquiring check CP 1920 on handy form, pgs. 2-3

CHEMICAL PROCESSING

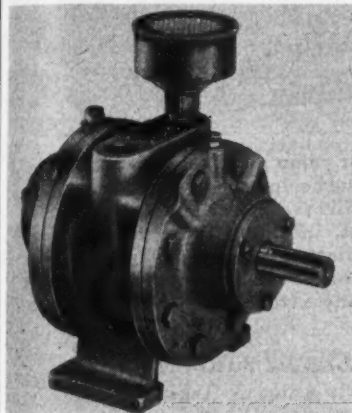
PROCESSING EQUIPMENT

Air motor cannot burn out; speed is varied by adjusting valve . . .

recommended for use in hazardous locations and for frequent stop-and-go operations

Uses: Rotary-vane air motor for use where variable speed drive with simple valve control is desired.

Features: Being explosion-proof, it can be used in hazardous locations. Particularly applicable to operations requiring frequent starts and stops because it cannot burn out when slowed or stalled.



Air motor provides 1/2 to 4 hp

Description: Operating range is from 1/2 hp at 500 rpm to 3 hp at 1500 rpm for reversible type; non-reversible models deliver up to 4 hp. Adaptable for air pressure from 30 to 80 psi, the motor uses from 20 to 100 cfm depending on rpm and load.

Motor weighs 25 lb; it measures 8-5/32" long, 5 1/4" wide, and 6-7/32" high with base.

Source: No. 8 air motor is a product of Gast Manufacturing Corp., Dept. CP, Benton Harbor, Mich. . . or for more information check CP 1921 on handy form, pages 2 and 3.

Removal of waste water is principal function of utility pump . . .

may be used merely for emergency service or may be mounted as permanent installation

Uses: General purpose utility pump for removal of collected waste water from elevator pits, transformer and cable vaults, boiler rooms, trenches, vats and tanks, basins, excavations, and basements.

Features: Pump can operate while completely submerged, and may be manually or automatically activated.

Description:

Entire unit is of corrosion-resistant bronze construction. Water can be drained to within 1/8" of the area floor. Compact design frees this pump from many installation restrictions; it can be left mobile or mounted as permanent installation.

Source: Utility pump is made by Kenco, Inc., Dept. CP, Lorain, O. . . or for more information check CP 1922 on handy form, pages 2 and 3.



Pump removes collected water

NO WONDER SHIPPERS INSIST ON HACKNEY 2-PIECE ACID DRUMS

for Shipping
Sulphuric Acid,
Aqua Ammonia,
Caustic Potash,
Hydrofluoric Acid
and Other
Corrosives



THEY LAST LONGER! Extra trips are built right into Hackney 2-Piece Acid Drums! Their seamless, cold drawn construction makes them last longer than the conventional 3-piece container, provides greater economies in the long run.

CONSTRUCTION MAKES THEM TOUGH! There are no longitudinal or chime seams—only one circumferential weld located between and protected by two I-bar, rolling hoops. Bung failures are minimized by heavy forged spuds attached by a two-pass weld. Extra strength and prolonged life are added by reinforced chime protectors. After complete fabrication, controlled heat-treating increases resistance to corrosion.

THEY'RE ALWAYS UNIFORM! You'll find every Hackney Acid Drum uniform in size, weight, strength and capacity. And no wonder! Only superior materials are used, after they are properly analyzed by expert metallurgists. Rigid inspections are made after every stage of production.

THEY'RE EASY TO CLEAN! No dirt or foreign matter can contaminate your product, for Hackney Drums are easy to clean. Interiors are smooth, entirely free of cracks and crevices.

Get the whole story on Hackney 2-Piece Acid Drums—write today.



Pressed Steel Tank Company

Manufacturers of Hackney Products

MAIN OFFICE AND PLANT: 1463 South 66th Street, Milwaukee 14, Wisconsin • 1387 Vanderbilt Concourse Bldg., New York 17 • 235 Hanna Bldg., Cleveland 15 • 936 W. Peachtree St., N. W., Room 226, Atlanta 3 • 208 S. LaSalle St., Room 796, Chicago 4 • 568 Roosevelt Bldg., Los Angeles 14, California

CONTAINERS FOR GASES, LIQUIDS AND SOLIDS

When inquiring check CP 1923 on handy form, pgs. 2-3

AUTOCLAVE ENGINEERS Announce . . .

New Magne Dash *

HIGH PRESSURE AUTOCLAVE

1. No Stuffing Box
2. Magnetically Operated Agitator
3. Positive Agitation
4. Adjustable Timer to Vary Agitation Cycle
5. No External Moving Parts
6. Internal Parts Type 316 Stainless
7. Furnished with Thermocouple Well and 4 Connections
8. Available in 100cc—250cc—500cc Sizes
9. Pressure Ratings—5,000 P.S.I. and 15,000 P.S.I.

WRITE FOR DETAILED INFORMATION

*Licensed by Standard Oil Company of Indiana—Patent Pending



AUTOCLAVE ENGINEERS, INC.

860 EAST 19TH STREET • ERIE, PENNSYLVANIA
LABORATORY & PILOT PLANT HIGH PRESSURE EQUIPMENT



When inquiring check CP 1924 on handy form, pgs. 2-3

So Many Things You Can Do Better In A Shriver Filter Press!

- RECOVER SOLIDS
- CLARIFY LIQUIDS
- WASH AND EXTRACT
- DRY FILTER CAKE
- REDISSOLVE CAKE
- MELT CAKE
- THICKEN SLURRY

**At Any Pressure and Temperature
With Minimum Operating Cost**

This filtration book tells why Shriver Filter Presses are so versatile; how they can fit into your processes; how to determine their cost and to select the right unit for the specific job. It's packed with practical information. Write for a copy—free.



T. SHRIVER & COMPANY, Inc., 846 Hamilton St., Harrison, N. J.

When inquiring check CP 1925 on handy form, pgs. 2-3

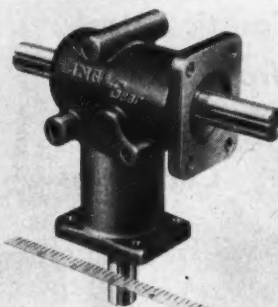
PROCESSING EQUIPMENT

Designs angle drive for manual, power applications . . .

direction of rotation reversible
Uses: Right angle gear drives for application with manual or power operated systems rotating at speeds to 1800 rpm.

Features: Bevel gears are specially hardened and provide ratios of 1:1 or 2:1. Direction of rotation is reversible.

Description: All models are available with 2-way or 3-way action. The 1/3 hp size will withstand 250 in-lb static torque, and has 3/8" shafts. The



Three-way model right angle gear drive

1 hp size will withstand 750 in-lb static torque and has 5/8" shafts.

Drives are provided with flanged end mountings and 3-bolt side mountings.

Source: ANGLgear drives are made by Airborne Accessories Corporation, Dept. CP, 25 Montgomery St., Hillside, N. J. . . or for more information check CP 1926 on handy form, pages 2 and 3.

Installation of guard for fluorescent lamps made without tools . . .

guard simply clips into place, prevents lamps from falling

Uses: Safety guard for standard (15 to 40 watt) fluorescent lamps to keep them from falling from their fixtures.

Features: Guard can be installed without tools.

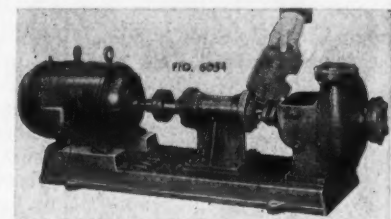
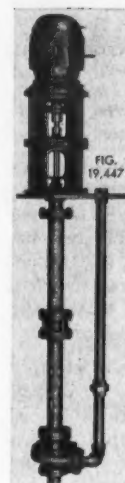
Description: To install, lamp is removed and guard slipped on each socket of fixture; brass clip locks it in place. Device guides terminal pins into sockets during relamping.

Source: Lok-Gyde guards are made by Edison Electrical Company, Dept. CP, 355 Weybosset St., Providence 3, R. I. . . or for more information check CP 1927 on handy form, pages 2 and 3.

K-554-A

NO ESCAPING FUMES!

FUMES ARE SEALED IN! CANNOT LEAK THRU STUFFING BOXES IN TABER CHEMICAL PUMPS because the load liquid does not come into contact with the pump packing.



If your pump job is movement of concentrated sulphuric or other fluids . . . you will have a special interest in Taber Pumps, including those adapted for mounting in processing and storage tanks or in vessels sealed against fumes or gases. Built of any metal or alloy found suitable by customer.

Write for Special BULLETIN V-837

Please use business stationery. Taber Pump Co.
Est. 1859 320 Elm St., Buffalo 3, N. Y.

TABER HIGHER PRACTICAL PERFORMANCE PUMPS

When inquiring check CP 1928 on handy form, pgs. 2-3

EVERY ARTICLE IN CHEMICAL PROCESSING IS "STAFF WRITTEN"

Every article in CHEMICAL PROCESSING is terse, brief, to-the-point . . . yet packed with essential facts of developments important to every man in chemical processing.

For every article is "Staff Written." Our Editors dig out the vital news-facts, then write them in the fewest possible words.

That's why you read so much . . . keep up with developments . . . in short reading time. You don't have to "wade through" long, hard-to-read articles.

That's why you don't find these articles signed . . . every one is "Staff Written." It's the most difficult kind of editing, but it pays big dividends to every busy reader.

PROCESSING EQUIPMENT

With 100 psi input, air motor punches 1/2" diameter hole through 1/16" steel . . .

double-acting air cylinder develops high piston speed and power from normal operating air pressure

Uses: Air motor for wide range of staking, riveting, forming, swedging, stamping, and punching operations; for quick cutting of continuously moving materials such as extrusions; for flash trimming of molded or cast plastics or metals; and similar operations where high piston rod speed and power are required.

Features: Double-acting air cylinder develops this high piston rod speed and power from normal operating air pressure. For example, at 100 psi air pressure, 2 1/2" bore motor develops sufficient force to punch 1/2" diameter hole through 1/16"-thick mild steel.

Description: Motors are available with choice of manual or electrical control. While they will operate on any air pressure from 5 to 175 psi, recommended pressure range is from 60 to 100 psi. Mounting styles are foot, pivot, and front or rear flange. Bores are either 2 1/2 or 3 5/8", with stroke lengths of 4, 6, 9, or 12".

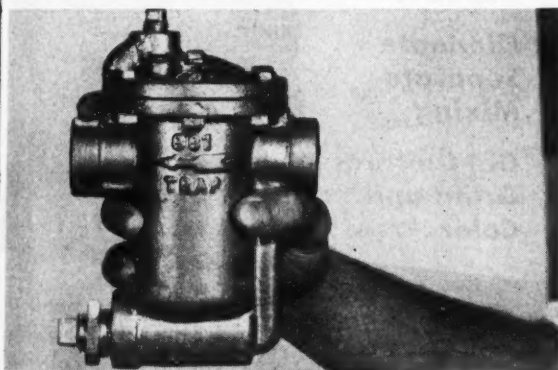
Source: Super Speed air motors are made by The Bellows Co., Dept. CP, Akron, O. . . or for more information check CP 1929 on handy form, pages 2 and 3.

Adds a larger size to storm trap-strainer combinations . . .

operating pressure is 250 psig, hot condensate capacity is 769-1060 lb/hr

Uses: Side-inlet, side-outlet trap is used for draining relatively small amounts of condensate from such equipment as sterilizers, jacketed kettles, unit heaters, steam headers, risers, etc.

Features: Has a brass strainer built right into the



Steam trap with integral strainer

body, eliminating a separate strainer, extra fittings, and associated installation costs. Trap costs less than a comparable standard trap plus a separate strainer.

Description: Trap is small inverted-bucket type, and is designated as No. 881. Specifications: 1/2 or 3/4" pipe connections; 250 psig operating pressure; 769-1060 lb/hr continuous discharge hot condensate capacity; 7-1/16" in height, 5" diameter, 6 pounds weight; cast semi-steel body and cap; and 18-8 stainless steel bucket.

Source: Armstrong Machine Works, Dept. CP, Three Rivers, Mich., is the maker. . . or for more information check CP 1930 on handy form, pages 2 and 3.

SIX MILLION GALLONS OF ACID will ride the rails — in this ACE rubber-lined tank

DOWN inside a tank car, this ACE rubber craftsman is "checking out" a lining that will deliver and store more than six million gallons of acid without failure over many years. Note the wide, straight seams. Note how each rivet head is meticulously

covered. Note, too, the things you *can't* see—the clean sand-blasted steel, the special compound of quality ACE rubber—the careful cutting, filleting, fitting and cementing—the things that make the metal-to-rubber bond so strong it can't blister or peel.

In all types of chemical equipment, ACE hard rubber linings and coverings are available to resist all alkalis, metallic salts, inorganic acids, hydrochloric acid any strength, sulphuric acid to 50° Bé, nitric acid to 16° Bé, phosphoric acid to 75%, and countless other corrosives. Other ACE plastics extend this range still further. *Ask for catalogs.*



When inquiring check CP 1931 on handy form, pgs. 2-3

YOUR DREAM OF A LAB A REALITY AT METALAB



Send for the
NEW Complete
METALAB Catalog on
Laboratory Furniture
and Equipment

Dreaming of a new, beautiful Lab? Planning to add
to your present equipment?

Let METALAB give you realistic advice on:

- How to plan your Lab for operating efficiency
- How interchangeable Sectional Units are used
- How to get the most for your Laboratory budget

Consult us for suggested layouts, specifications, and
estimates—without obligation... Rush that problem to us today!

**SECTIONAL LABORATORY FURNITURE
and EQUIPMENT by**
METALAB
Equipment Corp.

1535 Dean St., Brooklyn 13, N. Y.
When inquiring check CP 1932 on handy form, pgs. 2-3

SPECIFICATIONS

QUANTITY

DESCRIPTION

*Get these from Anti-Corrosive
the Co. that has more than
1,000 varieties and sizes of
Stainless Steel Fastenings
IN STOCK!*

FREE! Send for Folder 50F for full information

Anti-Corrosive SINCE 1927
Metal Products Co., Inc.
Manufacturers of STAINLESS STEEL FASTENINGS
CASTLETON ON HUDSON, NEW YORK

When inquiring check CP 1933 on handy form, pgs. 2-3

PROCESSING EQUIPMENT

**Pump's Intake chamber
may be special alloy
or rubber lined...**

heavy duty unit handles sand;
easy to maintain

Uses: For pumping sand and
similar materials.

Features: Two-piece frame con-
struction permits the rubber-lined or
special alloy intake chamber to be
replaced readily. Check valve elimi-
nates leakage.

Description: Made in direct con-
nected, belt driven, and overhead V-
belt driven types in 1, 1½, 2, 2½,
3, 4, 5, 6, and 8" discharge. Rubber-
covered wear parts are available for
all sizes and are inter-changeable
with the hard iron parts that are
furnished with this pump.

Wear parts are easily removed with-
out disturbing the intake or discharge
piping and are readily adjusted.

Source: Model K pump is built
by A. R. Wilfley and Sons, Inc., Dept.
CP, Denver, Colo. . . . or for more
information check CP 1934 on handy
form, pages 2 and 3.

**Compression-set low,
flexibility high
in O-rings...**

retain flexibility at temps of
-65°F and lower

Uses: O-rings are intended as hy-
draulic seals for systems handling pe-
troleum oils and most hydrocarbons,
either at high or low temperatures.

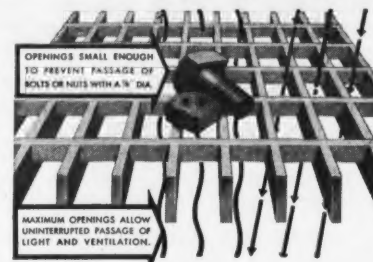
Features: Manufacturer reports that
the silicone rubber from which these
O-rings are molded is more resistant
to deformation under compression
than are either natural or other syn-
thetic rubbers. They retain their flexi-
bility at temperatures as low as -65°F
and lower.

Description: O-rings are at present
available in semi-commercial quanti-
ties — in a limited number of small
sizes. They are made to the following
specifications: tensile strength, greater
than 500 psi; elongation, greater than
80% at break; A₂ Shore hardness,
70-75; swell in fluorocarbons, Aro-
clors, and petroleum oil is less than
six percent.

Compression set is less than 10%
when under 30% compression for 22
hr at 300°F.

Source: Product of the Frederick
S. Bacon Laboratories, Dept. CP,
Watertown, Mass. . . . or for more in-
formation check CP 1935 on handy
form, pages 2 and 3.

TRI-LOK RECTANGULAR OPEN STEEL FLOORING



Tri-Lok strength is obtained by truss action through twisted
cross-bar, curved in opposite directions at each bearing-bar.
Standard openings in Tri-Lok Rectangular Steel Flooring are
1" x 3⅞" — other sizes can be supplied as required.

Diagonal, or Super-Safety U-type Flooring, and stair treads
of all types, are available. Bulletin KG 1140 describes the
construction features of Tri-Lok Open Steel Flooring.

The Tri-Lok Company is also equipped to furnish riveted
and Tri-Forge welded open steel flooring. Tri-Lok grating can
be furnished in a variety of metals, including aluminum
alloy, stainless steel, etc.

DRAVO CORPORATION

National Distributor for the Tri-Lok Company

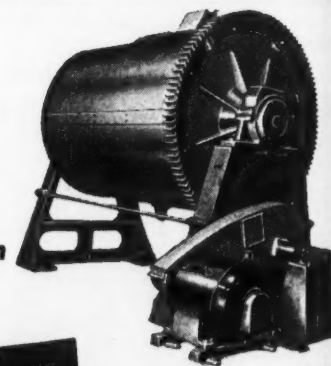
Dravo Building, Pittsburgh 22, Pennsylvania
Sales Representatives in Principal Cities



When inquiring check CP 1936 on handy form, pgs. 2

Mix and Grind in One Mill

- ✓ Increase Capacity
- ✓ Eliminate Separate Mixing
- ✓ Get Uniform Grind and Color



**ABBÉ
Pebble and
Ball MILLS**

We also build jar mills,
jar rolling machines,
"Dispersall" mixers and
special paint processing
equipment.

No attention needed
while grinding; no
solvent loss; easy to
clean. Abbé Mills are
world famous for bet-
ter construction and
performance. Sizes
from 9 to 3304 gallon
total mill volume.
Write for Catalog 55.

ABBÉ ENGINEERING CO. 46 CHURCH STREET
NEW YORK 7, N. Y.

When inquiring check CP 1937 on handy form, pgs. 2

CHEMICAL PROCESSING

PROCESSING EQUIPMENT

Adapters fit these jaws to any tensile test machine . . .

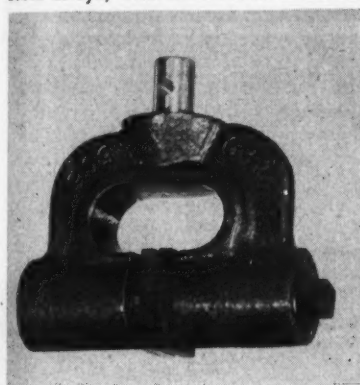
construction minimizes jaw breaks and provide nearly constant pressure on sample

Uses: Jaws for holding samples under test during tensile strength investigations.

Features: Resilient follow-up action; self-alignment of gripping faces; positive restraint of motion of gripping surface in direction of pull. These features minimize jaw breaks and maintain almost uniform pressure on sample.

Description: Jaw frames are made of aluminum or steel alloys, with stainless steel threaded inserts. Working

parts are of hardened, rustproof stainless steel. All jaws are statically balanced. Special adapters make these jaws suitable for use with any make of tensile testing machine. Jaw faces are available in choice of sizes and face characteristics, such as serrated, rubber coated, etc. Model BJ has load capacity of 5000 grams;



Jaws for use with any make of tensile test machine

Model CJ has load capacity of 100 lb; and Model DJ has load capacity of 1000 lb.

Source: Jaws are made by Instron Engineering Corp., Dept. CP, 2 Hancock St., Quincy 71, Mass. . . or for more information check CP 1938 on handy form, pages 2 and 3.

Rotation speeds to 1000 rpm, temperatures to 450°F handled by joints . . .

rotation takes place only on non-porous carbon disk

Uses: Revolving joints for use on lines carrying steam, air, oil, gas, water, and other fluids. For applications where rotation speeds to not exceed 1000 rpm at temperatures from minus 40 to plus 450°F.

Features: Rotation takes place only on non-porous carbon disk.

Description: Joints are made from any non-corrosive metal, and can take care of all special packings such as

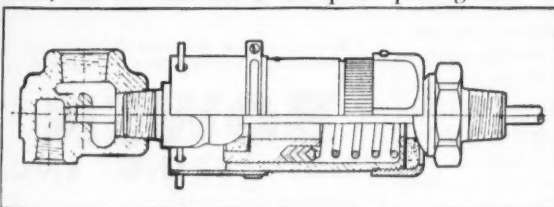
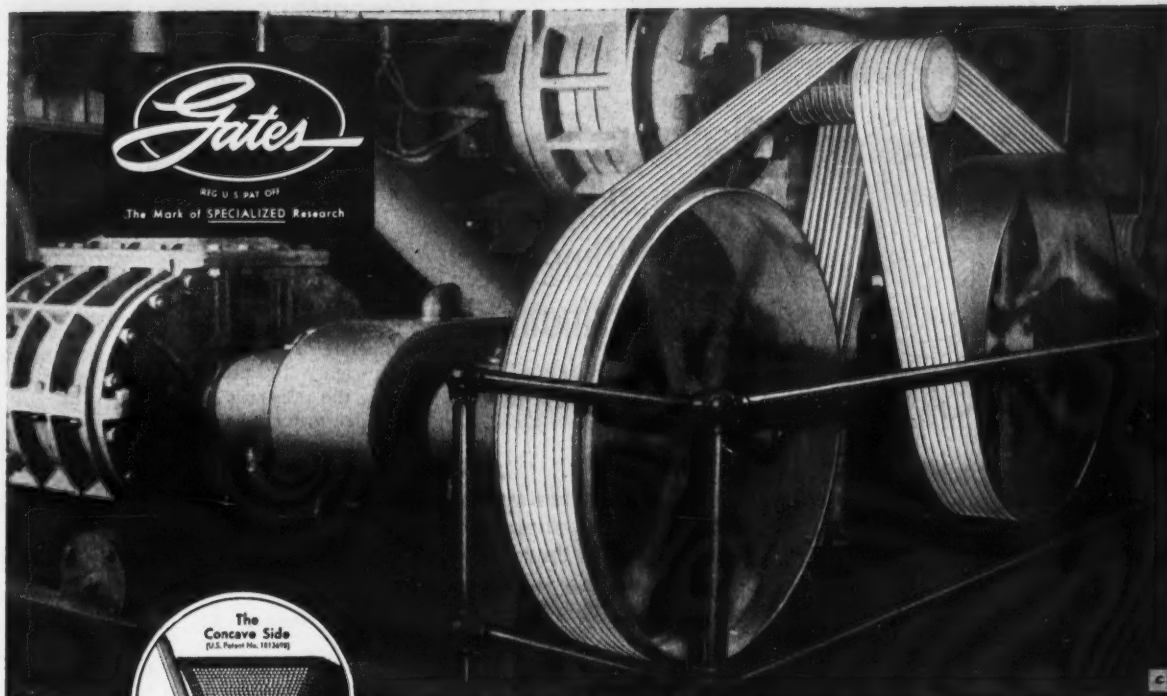


Diagram shows components of revolving joint

Teflon, nylon, or Kel-F. It is self aligning, thus eliminating need for flexible hose. Rotor ball is stainless steel.

Source: Revolving joints are made by Rotherm Engineering Company Inc., Dept. CP, 4911 W. Irving Park Rd., Chicago 41, Ill. . . or for more information check CP 1939 on handy form, pages 2 and 3.

NOVEMBER, 1950



These two vacuum pumps suck the water from the paper web going through a paper-making machine. When the flat belts which formerly drove them slipped, excess moisture was left in the web, causing it to break. This meant a 40-minute loss of production while the difficulty was remedied. The Gates Vulco Rope Drive shown has eliminated all slip, and with it, web breakage.

Let this simple test tell you exactly WHY the Concave Side cuts your V-Belt costs

To see for yourself the belt-saving importance of the Concave Side, just pick up any V-belt and bend it as it bends when it goes around a pulley.

As the belt bends, grip its *sides* firmly with your fingers. You will feel the sides of the belt *change shape*. This is because the top of the belt is under tension and, hence, grows *narrower* while the body, under compression, *bulges out*. (See figure 1 and 1-A)

Now look at figures 2 and 2-A. There you see how the bending changes the shape of the belt that is built with the Concave Side—The Gates Vulco Rope. The concave sides of this belt merely *fill out* and become perfectly *straight*. There is no side-bulge. This belt, when bent, *precisely fits its sheave groove*.

A very distinct saving in belt wear results. No side-bulge means that the sides press *evenly* against the V pulley and therefore wear *uniformly*—resulting in longer life for the sidewall and, naturally, *longer life for the belt!*

If you care about cutting your belt costs, it will pay you to make sure, whenever you buy V-Belts, that you get the V-Belt with the Concave Sides...the Gates Vulco Rope!

What Happens When a V-Belt Bends

Straight-Sided V-Belt



How Straight-Sided V-Belt Bulges in Sheave-Groove. Sides Press Unevenly Against V-Pulley Causing Extra Wear at Point Shown by Arrows.

Gates Vulco Rope with Concave Side



The Concave Side Fills Out to a Precise Fit in the Sheave Groove. No Side Bulge! Sides Press Evenly Against the V-Pulley—Uniform Wear—Longer Life!

CS-508

THE GATES RUBBER COMPANY
DENVER, U.S.A.
World's Largest Makers of V-Belts

GATES VULCO ROPE DRIVES
Engineering Offices and Jobber Stocks
IN ALL INDUSTRIAL CENTERS of the U.S. and 71 Foreign Countries

When inquiring check CP 1940 on handy form, pgs. 2-3



**"Discover
how wonderfully
small trifling
expenses mount up
to large sums."**

—Ben Franklin's Almanac, 1757

**A single per cent saved here and another
per cent saved there strengthens thy
working capital for the coming year.**

—Acme Steel Notebook, 1950*

Improved efficiency . . . greater thrift! For better than 70 years, Acme Steel methods and Acme Steel products have been helping American business obtain the benefits of these tried-and-true business virtues.

Almost every American industry is represented among Acme Steel's more than 50,000 customers, particularly in departments and operations concerned with packaging, shipping and materials handling.

For information on Acme Steel products, write on your business letterhead for free booklets on the specific products in which you are interested.

ACME STEEL COMPANY

Dept. CP-110, 2838 Archer Avenue, Chicago 8, Illinois
There are 46 Acme Steel service offices in the U.S. and Canada.

*The sagest maxims of Ben Franklin, together with modern parallels, appear in Acme Steel Notebook, 1950. We have a free copy for you. Just ask for it.



Acme Silverstitchers are designed for production. 100-lb. bags of hot liquid asphalt are sealed economically and securely right on the assembly line.



Acme-Champion Bag Stitchers are widely used throughout the food industry.

ACME STEEL

Of the 3808 Acme Steel employees 337 or 8.8% have worked with Acme for more than 25 years each and are members of our Quarter Century Club. Their total service represents 9305 years—tribute to "A Good Place to Work."

ACME STEELSTRAP flat steel strapping and ACME UNIT-LOAD carload bracing BAND, SEALS and TOOLS • ACME SILVERSTITCHER machines • ACME SILVERSTITCH stitching wire • ACME-MORRISON METAL STITCHERS and BOOK STITCHERS • ACME-CHAMPION BAG STITCHERS • ACME HOT AND COLD ROLLED STRIP STEEL • ACME GALVA-BOND steel slot stock for Venetian blinds • ACME STEEL SPECIALTIES, including hoops, corrugated fasteners, nail-on strapping and other container reinforcements • ACME STEEL ACCESSORIES—snips, cutters, punches, tool mounts, reel stands, coil holders, coil trays.

When inquiring check CP 1941 on handy form, pgs. 2-3

PROCESSING EQUIPMENT

**Steam is generated at
98½% efficiency
in boilers . . .**

current consumption automatically adjusted to give constant output conditions

Uses: Small steam boiler can be used for lab work, jacketed kettles, glue pots, plastic presses, paint heaters, sterilizing, and many similar applications.

Features: Boilers operate at 98½% efficiency by utilizing the resistance of boiler water to passage of electricity between solid metal electrodes. This operating principle eliminates coils, tubes, and elements.

Description:

Boilers measure 14 x 22 x 28", and may be plugged into ordinary lighting circuits. Pressures are instantly adjustable within boiler capacity range, providing precise temperature control. No pressure switches, thermostats, or relays. Balanced control automatically and continuously adjusts current consumption to the exact amount required to maintain desired steam output, pressure, and temperature.

Model LP-½ is designed for low pressure applications under 15 psi, and is generally exempt from code requirements. Model 400-½ is an ASME Code boiler carrying National Board Stamping and Insurance Company Certificate for pressures to 50 psi. Both boilers are UL-listed, and can be used on closed or open systems.

Source: Boilers are products of Livingstone Engineering Company, Dept. CP, 100 Grove St., Worcester 5, Mass. . . . or for more information check CP 1942 on handy form, pages 2 and 3.

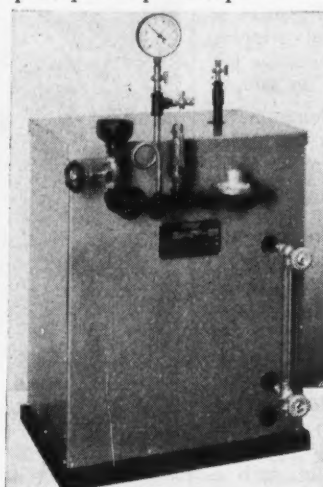
**Oil up to 20 points at once
with solenoid controlled
multiple feed system . . .**

delivers measured amounts of oil instantly on starting; manually operated model also offered

Uses: For lubricating 1 to 20 points at once from a central unit under fully automatic solenoid control, or manually. Typical applications include production equipment, automatic machines, conveyors and chains.

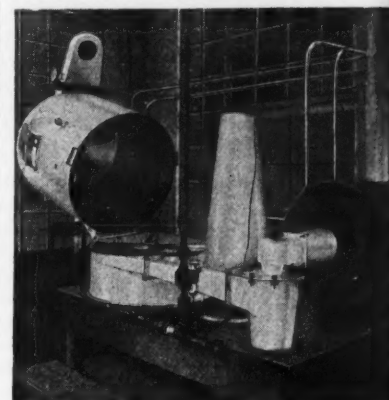
Features: Proper lubrication constantly maintained; human element of uncertainty reduced to minimum; shut-downs for ordinary hand oiling avoided; savings in oil and labor. Supply of oil remains in master tube at constant level with needle valve port holes for instant feeding when starting.

Description: Oil is fed by gravity from large reservoir through individually adjustable needle valves through copper or Neoprene tubing to various bearings. When solenoid, located directly below reservoir, is energized, oil feeds to all lines. It stops feeding when current is turned off. Solenoid can be connected directly across motor starting



Small steam boiler operates on ordinary lighting circuits

Three Exclusive Features Account for the POPULARITY OF BOWEN LABORATORY SPRAY DRYERS



Dryer Open for Cleaning

1. They are easy to clean

The chamber is hinged at the base for quick opening. The entire inside of the chamber can be easily reached for brushing out or washing. Duct work and collector are flanged and fastened with quick-opening wing nuts.

2. They are simple to operate

Made of stainless steel throughout where wet material or dry product contacts metal surface, the unit has been specially engineered for compactness and ease of operation.

3. They are actually miniature commercial spray dryers

The Bowen Laboratory Spray Dryer operates as a miniature of the Bowen commercial dryers. The same type of atomization is used. Because design and proportion of equipment parts are simply smaller in size, operation of the laboratory unit simulates full scale production technique.

Write for a list of companies who are using Bowen Laboratory Spray Dryers in your field.

BOWEN ENGINEERING, INC.

NORTH BRANCH 1
NEW JERSEY

Recognized Leader in
Spray Dryer Engineering
... Since 1926



When inquiring check CP 1943
on handy form, pgs. 2-3

CHEMICAL PROCESSING

A HINT FROM

FEON

Adds 3 Months to Life of Nylon Filter Cloth

This large chemical plant had already boosted filter cloth life from one to eight weeks by switching to FEON nylon on scraper filters. But that didn't satisfy the FEON applications engineer. He suggested adding a padduck of FEON-299 nylon under the cloth. Result: life of the filter cloth was further increased to 21 weeks!

This is just one of many cases where FEON engineering—plus the longer life of FEON fabrics—have saved extra dollars. We'll be glad to make specific recommendations for you, too.

FEON FITS *Your* FILTER

Strong, chemical-resistant synthetic cloths are made by Filtration Fabrics Division to fit all makes of vacuum and pressure filtration equipment. Choose from wide variety of materials and weaves.

**GET STARTED
NOW**

FILTRATION FABRICS DIVISION

Filtration Engineers, Inc.

155 Oraton St., Newark 4, N. J.

*We'd like more facts on
FEON cloth for:*

Type of Filter
Size
Chemical Conditions
Temperature
NAME
TITLE
COMPANY
ADDRESS

23

When inquiring check CP 1944
on handy form, pgs. 2-3

PROCESSING EQUIPMENT

switch to feed automatically when starting or stopping feed when equipment is not in operation.

Manual control has a shut-off lever at top. When lever is in upright position, oil is fed to all outlets, when flipped to side, feed is stopped.

Sight feed fittings show at a glance the amount of oil being fed to bearings, and are offered in Pyrex glass or shatter-proof Lucite. Reservoirs are available in pint, quart and 2½ quart sizes. Needle valve assembly is ¼" above base of master feed tube to provide a sediment chamber where all foreign matter is trapped. Individual feed lines have vibration and leakproof friction-fit needle valve adjustments, permitting independent regulation. Complete solenoid type oiler measures only 6" wide by 9-7/8" high.

Source: Trico Fuse Mfg. Co., Dept. CP, North Fifth at West Chambers, Milwaukee, Wis. . . . or for more information check CP 1945 on handy form, pages 2 and 3.

Use of silica gel in package protection simplified by mobile storage unit . . .

container with airtight compartments holds bags of dessicant; humidity indicator cards

Uses: For moving silica gel and humidity indicator cards to any packaging point in plant. Provides storage for silica gel bags in range of sizes to meet various packaging requirements.

Features: Equipped with sturdy casters for easy mobility. Each of the four sections is equipped with individual hinged lid, with thick rubber gaskets around all sides. Marine lock is provided for each lid, while an



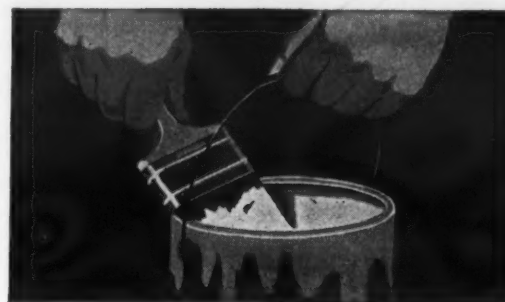
Dessicant storage unit has hygrometers, drying lamp

additional arrangement permits locking all lids with one master lock. Each lid is equipped with a hygrometer to indicate the relative humidity in each of four sections of the unit.

Description: The unit is divided into four sections. Each section is divided into a section of 10 compartments for daily storage of silica bags ranging from 5 grams to 5 lb. Compartments are provided for indicating cards. A portable electric drying lamp is provided for drying the air in the open compartment before resealing. Two removable work shelves are attached, one at each end of the container, making a contained packaging unit, eliminating use of work tables.

Source: Mobile dessicant container is built by D. C. Cooper Co., Dept. CP, 1467 So. Michigan Ave., Chicago, Ill. . . . or for more information check CP 1946 on handy form, pages 2 and 3.

from paint



to potato chips!

process men value

DOWTHERM

The heat transfer medium for high temperatures

Yes, in addition to its economy, simplicity, and efficiency, Dowtherm is safer!

Dowtherm permits the use of a system in which the fire is removed from any flammable material in process. High-temperature operations, formerly possible only under dangerous and costly conditions, are now accurately and safely controlled by this indirect system. Dowtherm presents little hazard in handling, in shipping and storage.

Today Dowtherm users, whether they be paint manufacturers or food processors—or engaged in any other high-temperature operation—enjoy a security unknown in earlier systems. If your operations require precise heating in the 300°–750° F. range, write to Dow for complete information about Dowtherm.

THE DOW CHEMICAL COMPANY
MIDLAND, MICHIGAN

THE DOW CHEMICAL COMPANY
DOWTHERM DIV. 283-R2
MIDLAND, MICH.

Name Title
Company
Address
City State



When inquiring check CP 1947 on handy form, pgs. 2-3

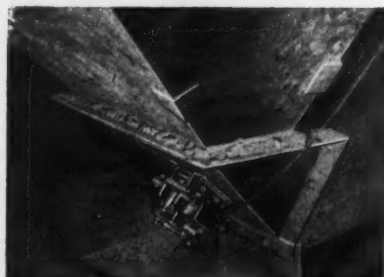
SYNTRON

"Pulsating Magnet"

ELECTRIC VIBRATORS



On Small Hoppers



On Small Bins



On Large Bins



On Chutes

**SAVE
MANPOWER!**

**Assure
FREE-FLOWING
Bins, Hoppers,
Bunkers & Chutes**

Their 3600 vibrations per minute assure a smooth, effortless, controlled flow of material through bins, hoppers and chutes—save equipment and manpower by eliminating pounding, hammering and rodding. They prevent loss of costly time due to material coming "short" on dependent operations and prevent loss of material due to "surges".

They can be applied to any size and shape of bin, hopper and chute—whether made of steel, wood or concrete—handling bulk chemicals, rock, sand, coal, etc.

WRITE — giving the details of your problem (thickness or gauge of hopper wall, overall dimensions, description of material—weight per cubic foot, moisture content, mesh—our Engineering Department will be glad to give you their recommendations.

SYNTRON CO.

110 Lexington

Homer City, Pa.

When inquiring check CP 1948 on handy form, pgs. 2-3

PROCESSING EQUIPMENT

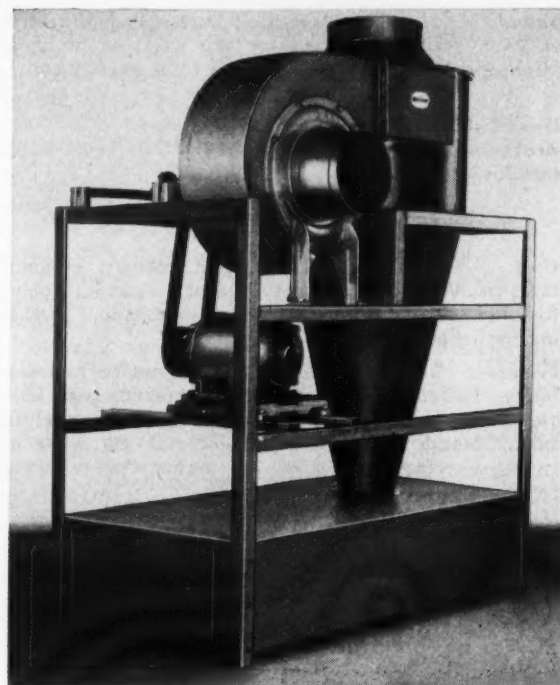
**Dust from 10,000 cu ft air
removed every minute . . .**

collector is pretested, permitting its immediate operation with predictable results

Uses: For separating a wide variety of industrial dusts from an air stream and discharging cleaned air and toxic fumes outdoors. Dusts from such operations as buffing, conveying, mixing, and boxing are recognized uses.

Features: Dust collector is pre-tested, permitting its immediate operation with predictable results upon receipt.

Description: Model 90N50 "Dustkop" has a capacity of 10,050 cfm. Collector's paddle wheel fan is driven by



Dust collector is pre-tested, ready for use

a 15-horsepower motor that operates on 220/440-volt, 3-phase, 60-cycle power supplies. Special motors for other power supplies are available. Unit develops a static suction of 4" on a 15" inlet. Size of outlet for discharge of cleaned air to outdoors is 18" diameter.

Source: Product of the Agat-Detroit Company, Dept. CP, Ann Arbor, Mich. . . or for more information check CP 1949 on handy form, pages 2 and 3.

**Neoprene impregnated plies
make conveyor belting
sanitary . . .**

white or brown; 3 and 5 ply in any width up to 48"; washable, odorless, acid resistant

Uses: For wide range of light conveying and transmission work. Sanitary features make it particularly adapted for handling products for human consumption.

Features: Both types have smooth neoprene cover on one side and are oilproof, waterproof, odorless, tasteless, non-toxic, washable, heat resistant, acid and alkali resistant, and can be vulcanized to be endless.

Description: Offered in either white or brown. Both



**BURELL
FURNACES**

Furnaces for experimental melting, sintering, heat-treating and for other analytical procedures requiring high temperatures up to 2650° F.

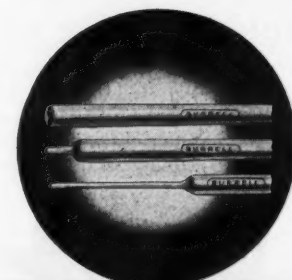
Bulletin 210

"Unit-Package" Tube Furnaces

Bulletin 315

"Dual-Range" Box and Muffle Furnaces.

Write for Literature.

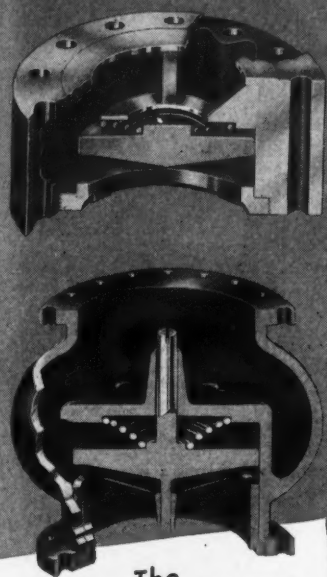


**ZIRCUM
COMBUSTION TUBES**

Recommended for carbon and sulfur —by combustion methods in analysis of ferrous materials, or other types of work requiring gas-tight tubes for temperatures up to 2900° F. They are smooth, straight and true to both bore and wall thickness. Available in various lengths and diameters. Write for Bulletin 214.



When inquiring check CP 1950 on handy form, pgs. 2-3



The
WILLIAMS-HAGER
flanged
Silent check
VALVE

- durable
- compact
- accessible
- low friction

the economical
practical solution
to costly
WATER HAMMER

With its renewable disc and seat, non-wearing conical spring, the Williams-Hager Valve offers dependable protection in any position—horizontal, vertical with upward, vertical with flow downward and angular—easily installed. Easily installed or resealed without special tools, it is available in standard pipe sizes from 1" to 20"

Write for Bulletin WH 100

THE WILLIAMS GAUGE CO.

Pump Valves . . . Water Gauges . . . Gauge
Cocks . . . Steam Traps . . . Pump Governors
. . . Feed Water Regulators . . . Water Columns

3015 PENNSYLVANIA AVE. • PITTSBURGH 33, PA.

When inquiring check CP 1951
on handy form, pgs. 2-3

PROCESSING EQUIPMENT

types are constructed with a skim coat of neoprene rubber between all plies. This means that the fabric is completely embedded in protecting cushions of neoprene rubber. All belts are supplied with a special bonded edge which prevents fraying. Both types are constructed of a 9 oz. tightly woven canvas duck of great strength (140 lb per inch of ply).

All endless belts are spliced with a multiple step lap instead of bevelled type lap. Original neoprene rubber between plies is thoroughly removed and replaced with new uncured neoprene tie gum. Neoprene rubber at lap is removed and replaced with uncured neoprene cover stock. After the proper preparations, the belt is thoroughly vulcanized in a high pressure vulcanizer.

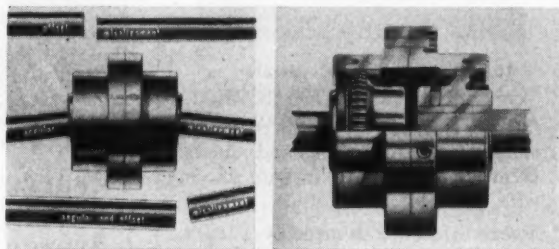
Source: Baldwin Belting, Inc., Dept. CP, 74-76 Murray St., New York 7, N. Y. . . or for more information check CP 1952 on handy form, pages 2 and 3.

**Adjust misalignment up to 7°
with dihedral tooth coupling;
cool running and quiet . . .**

handles angular, offset or combination of both; special models handle up to 12°

Uses: Designed for adequate handling of angular or offset misalignment or a combination of both to a total of 7°. Special models will handle up to 12°. For applications involving misalignment problems caused by faulty original alignment, normal bearing wear, settling foundations, old or inadequate wood floors, weaving chassis or structural mountings.

Features: Large savings in cost of lining up equipment. Simplifies machine design by eliminating necessity for precision alignment of driving and driven shafts. Eliminates



Coupling handles various misalignments; bearing surfaces do not rupture oil film

necessity for shimming on most jobs. Dual purpose oil seals are especially designed to keep dirt out as well as keep lubrication in. Dihedral tooth has strong basic form, 30° involute splines assuring more tooth load area. Free end permits electrical machinery to find its magnetic center.

Description: A radically different and efficient spline or gear type coupling designed to handle shaft misalignment beyond usual capacity of many conventional flexible couplings. It has less backlash or clearance between teeth than other types of spline or gear type couplings. All teeth are hardened. Under all practical conditions of misalignment, driving area is at center of tooth where it is strongest. At maximum rated alignment, driving area spreads over an entire half tooth. Coupling size range covers maximum bore from 1½ to 5"; capacities: 12 to 350 hp at 100 rpm; maximum rpm: 4,300 to 12,000.

Source: Ajax dihedral coupling is made by Ajax Flexible Coupling Co., Inc., Dept. CP, Westfield, N. Y. . . or for more information check CP 1953 on handy form, pages 2 and 3.



BLAW-KNOX FOG SYSTEMS

**STOP THESE FIRES
BEFORE THEY START!**

*Deluge Systems, Wet
Pipe Systems, Dry
Pipe Systems, Water
Spray and Fog Sys-
tems, Rate-of-Rise
Sprinkler Systems,
and Foam and Car-
bon Dioxide Exting-
uisher Systems.*

"LITTLE
JOEY SPRINKLER"



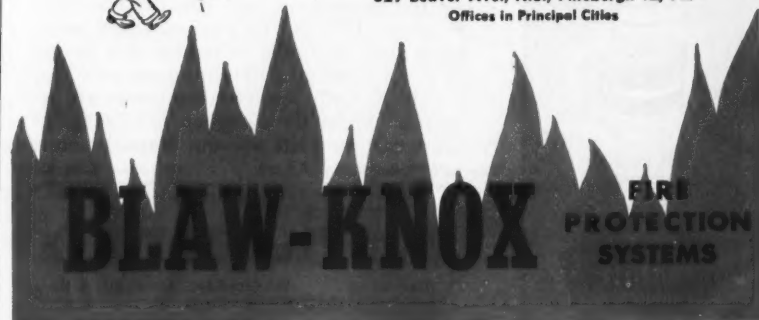
Storage of oil or volatile liquids presents special fire hazards. Blaw-Knox Fog Nozzles and thermostatically controlled Fire Protection Systems give no handicaps to fire—no chance for fire to get out of control. The "double-purpose fire-plus" spray instantly spreads a cloud of wet fog and at the same time strikes through to the base of any fire.

A survey of your fire hazards to determine which system will give you the utmost protection at the least cost involves no obligation.

Blaw-Knox Fire Protection Systems carry the approval of all insurance underwriters.

**BLAW-KNOX SPRINKLER DIVISION
OF BLAW-KNOX CONSTRUCTION COMPANY**

829 Beaver Ave., N.S., Pittsburgh 12, Pa.
Offices in Principal Cities



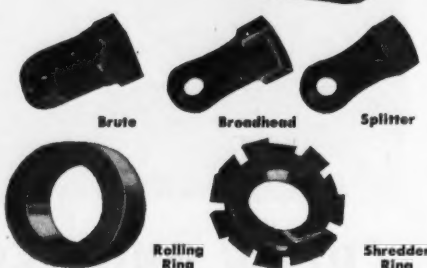
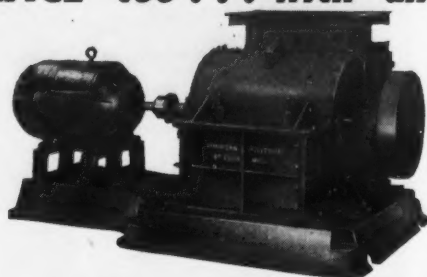
When inquiring check CP 1954 on handy form, pgs. 2-3

GET UNIFORM REDUCTION and HIGH TONNAGE too... with an AMERICAN "24" Series CRUSHER

You can maintain rigid control over uniformity while achieving high tonnage reduction of your materials—with an American "24." Equipped with ring or hammer-type rotors, this versatile crusher reduces all hardnesses of mineral or fibrous materials—rapidly and uniformly—to give you dependable, volume production at low cost.

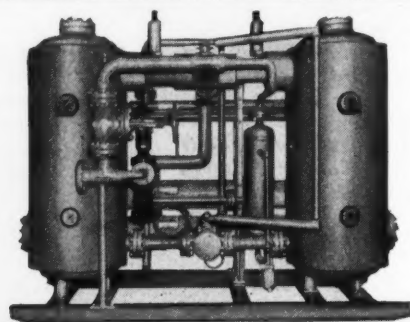
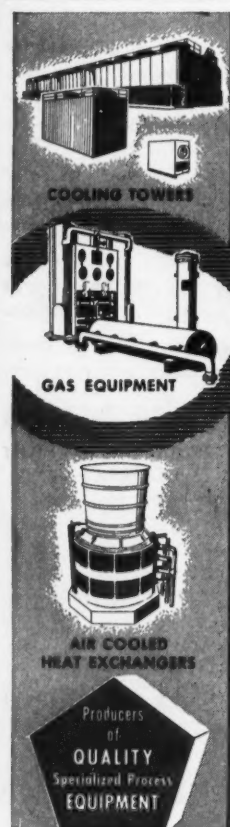
For the exact reducing action you require... the rugged, balanced American rotor can be equipped with rolling rings or shredder rings—or rotor can be supplied for any of three hammer types—to give you the flexibility and exact reducing action you require.

Write for information on the complete line of Americans.



American PULVERIZER COMPANY
Originators and Manufacturers of
Ring Crushers and Pulverizers
1067 Macklind Ave.
St. Louis 10, Missouri

When inquiring check CP 1955 on handy form, pgs. 2-3



Install the New Pritchard HYDRYER*...

... for Dependable Dehydration
of Air and other Gases

Unexcelled for efficiency in drying air for instrument and process controls. Pritchard HYDRYERS are standard packaged units designed to reduce dew points of compressed air and other gases to minus (-) 40° F. Only service connections are required. Specially designed HYDRYER* units can be built to your requirements.

Write for FREE Bulletin No. 16.0.080

*Registered Trade Name

EQUIPMENT DIVISION
J.E. Pritchard & Co.
Dept. No. 68 908 Grand Ave., Kansas City 6, Mo.

District Offices:
HOUSTON • ST. LOUIS • CHICAGO • PITTSBURGH • TULSA • NEW YORK
Other Representatives in Principal Cities from Coast to Coast,

When inquiring check CP 1956 on handy form, pgs. 2-3

PROCESSING EQUIPMENT

Two chambers in filter
permit adjusting its
optimum capacity...

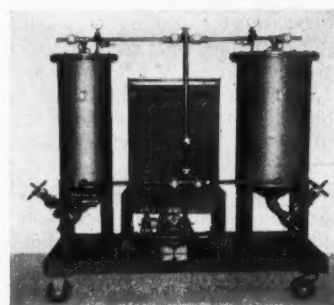
choice of 10, 20, or 30 sq ft
filtration area offered

Uses: Membrane filter for general
applications.

Features: Choice of 10, 20, or 30
sq ft filtration area may be obtained
from same unit, maintaining peak oper-
ating efficiency whether batch sizes
are small or large.

Description: Filter is constructed
of 316 stainless steel, and is composed
of 1 filter chamber with 10 sq ft filter-
ing area, a second filter chamber
with 20 sq ft filtering area, and
precoat tank.

Chambers may be operated simultane-
ously with the precoat tank, or singly,
thus offering choice of optimum capac-
ity. Unit described uses permanent



Two chambers enable operator to
change optimum capacity of filter

filtering elements within the chambers,
eliminating bags, pads, and sheets.
Elements are available in wire screen,
wire mesh, or porous stone.

Source: Filter is made by Titeflex,
Inc., Dept. CP, 500 Frelinghuysen
Ave., Newark 5, N. J. . . or for
more information check CP 1957 on
handy form, pages 2 and 3.

Describes agitating and mixing equipment

Equipment for agitating and mixing
is offered in 32-page, illustrated cata-
log. Contents include portable pow-
er mixers; agitator-mixer assemblies;
agitator-mixer drives; outside-
packed, side-entering agitators; acid
resistant linings for mixers and pro-
cessing tanks; and other products.

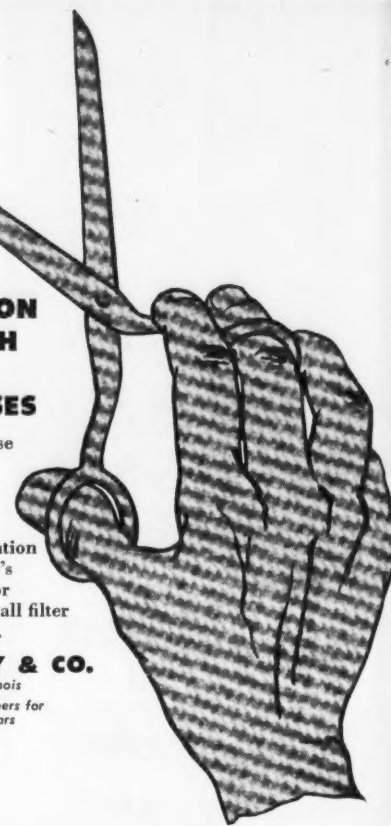
Specifications, applications, and opera-
tion data are provided in Catalog
505, issued by The Patterson Foundry
& Machine Co., Dept. CP, East
Liverpool, O. When inquiring spec-
ify CP 1958 on handy form, pages
2 and 3.

CUT

PRODUCTION COSTS WITH SPERRY FILTER BASES

The right filter base
means minimum
operating costs.
And you are sure
to find the right
base for your filtration
problem in Sperry's
complete stock. For
prompt delivery, call filter
base headquarters.

D. R. SPERRY & CO.
Batavia, Illinois
Filtration Engineers for
Over 50 Years



When inquiring check CP 1959 on handy form, pgs. 2-3

Federated first for Lead Products

Asarco Sheet Lead... All commercial weights and
sizes. Chemical...Tellurium Chemical...Antimonial.

Asarco Lead Pipe... All commercial sizes. Special
sizes on request. Chemical...Tellurium Chemical...Antimonial.

Asarco Lead and Lead Lined Valves
... Split Type "Y" and "Angle", Standard "Y", Gate, Check,
Hard Lead "Y", Plug and Seat.

Asarco Lead Fittings... Elbows, Crosses, Tees,
"Y's", (with plain ends, with flanges on, or for flanging in the
field). Chemical and Antimonial.

Asarco Lead Wool... 5/8" rope in 50 lb. waterproof bags.

Asarco Lead Specialties... Extrusions and
Castings to specification.

See Federated also for Lead Lined Pipe
Lead Lined Fittings, Lead Lined Flanges

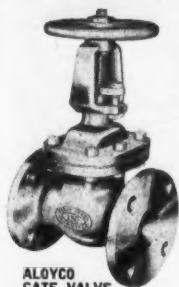
Federated Metals Division
AMERICAN SMELTING AND REFINING COMPANY,
120 BROADWAY, NEW YORK 5, N. Y.



When inquiring check CP 1960 on handy form, pgs. 2-3

CHEMICAL PROCESSING

ALOYCO sets the STANDARD



ALOYCO
GATE VALVE,
No. 111, 150 lb.,
Flanged, F and D.
Sizes 1/2" to 12".

WHEN you install Aloyco Corrosion-Resistant Valves, their exceptionally long "life expectancy" makes substantial savings in your operating costs.

Aloyco durability is due to the painstaking development of the best practice in every step of the manufacture of these valves—from the drafting room clear through to the test bench.

Take the No. 111 Gate Valve, for example. This valve with its remarkable split wedge construction has been imitated widely, but never equalled outside of the Aloyco shops.

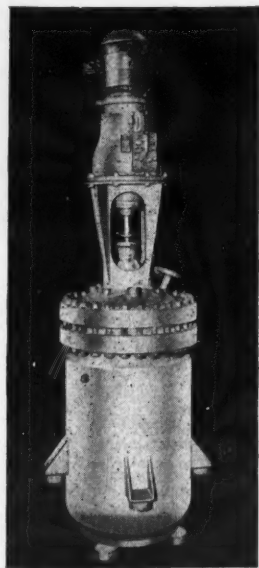
Aloyco Valves are furnished in Aloyco 20, 18-8S, 18-8SMo, Monel, Nickel and other alloys. They are manufactured in compliance with the new MSS Stainless Steel Valve Standards.

Aloyco field engineers, backed by complete metallurgical and engineering staffs, are available to assist you in the selection of the best valve and alloy to suit your requirements.

ALLOY STEEL PRODUCTS CO., Inc.
1302 West Elizabeth Ave., Linden, N. J.
Atlanta — Chicago — Houston — Los Angeles — New York
Pittsburgh — Wilmington

When inquiring check CP 1961 on handy form, pgs. 2-3

REACTION VESSEL



Illustrated here is a 75-Gallon Type 347 Autoclave, 500 p.s.i. working pressure, 125 p.s.i. jacket pressure. ASME U-68 inside, U-69 jacket. 2 Horse Power gear motor and turbine agitator. Built for a pharmaceutical producer.

Our staff of technical experts are prepared to specifically design equipment for a laboratory or a complete plant.

ALLOY FABRICATORS

DIVISION OF CONTINENTAL COPPER AND STEEL INDUSTRIES, INC.

PERTH AMBOY - NEW JERSEY



When inquiring check CP 1962 on handy form, pgs. 2-3

NOVEMBER, 1950

PROCESSING EQUIPMENT

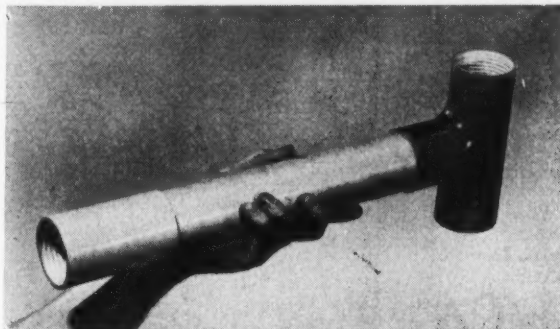
**Bond glass fibers with resin;
form inexpensive non-metallic
pipe for process service . . .**

handles dilute and strong acids; may replace steel, lead for handling corrosives

Uses: For application in chemical processing and other field such as electrical and construction industries. Resistance makes it suitable for handling many dilute and strong acids.

Features: Offered as a replacement for steel, lead and other materials. Glass-fiber piping has high strength and is rust and corrosion proof. Possesses good electric properties and is light weight.

Description: In this laminated piping or tubing glass fibers in the form of cloth, mat, or tape are bonded with



Glass-fiber pipe resists heat, impact

resins to develop a rugged tube impervious to extreme heat, chemical action, and impact.

Source: Glasweld piping is a development of United States Plywood Corp., Dept. CP, 55 West 44th St., New York 18, N. Y. . . . or for more information check CP 1963 on handy form, pages 2 and 3.

**Multi-breaker uses extended
by split main bus . . .**

meets code requirements; eliminates useless tripping on harmless momentary overloads

Uses: Bus has been segregated to allow control of all lighting circuits by a main breaker while other heavier circuits such as range, water heater, dryer and sub-feeds are controlled by parallel main breakers.

Features: Two variations permit either the lighting main with 12 single pole branches and two parallel 3-wire circuits, or the lighting main with eight single pole branches and four parallel 3-wire circuits.

Description: Arrangement cited makes available an economical 100 ampere circuit breaker service entrance device complying with paragraphs 2351-A and 2371-A of the 1947 National Electrical Code (6-circuit limit).

All circuits give 2-way protection with a thermal-magnetic operating mechanism which combines the advantages of both thermal and magnetic tripping elements. This mechanism gives positive protection against dangerous overloads and acts instantaneously on "shorts". Useless tripping on harmless momentary overloads is eliminated. Other arrangements extend the use of Multi-breakers from 1 to 12 circuits.

Source: Type MO 20 Multi-breaker load center is built by Square D Co., Dept. CP, 6060 Rivard St., Detroit 11, Mich. . . . or for more information check CP 1964 on handy form, pages 2 and 3.

EXTRA FAST, EASY

Pipe Reaming ON 1/8" TO 3" PIPE

"I'll take this extra-long-taper
RIGID every time
. . . makes reaming
a cinch!"



And RIGID LongGrip Reamers Won't Flare or Split Pipe

● It's the extra-long-taper on **RIGID** LongGrip reamer that makes it smooth the burr cleanly out of pipe or conduit almost without effort. Just a few light ratcheted strokes and your job's done—no worry about thinning, flaring or splitting. Saves your time, work and pipe. Furnished complete with ratchet handle, or No. 2 reamer unit sold separately for use in **RIGID** OOR small ratchet die handle. Two sizes, No. 2, 1/4" to 2"; No. 3, 1/2" to 3". Ask your Supply House.

RIGID
WORK-SAVER PIPE TOOLS

THE RIDGE TOOL CO. • ELYRIA, OHIO

When inquiring check CP 1965 on handy form, pgs. 2-3

Announcing
ASCO "MIDGET" SIZE
TWO-WAY AND THREE-WAY
SOLENOID VALVES

Only 2¹³/₁₆" From
Finger to Thumb

These Midget Two-Way (illustrated) and Three-Way Valves have many applications in the control field because of their compactness, sturdiness and efficiency. The Two-Way Valve comes in two pipe sizes: 1/8" and 1/4" Normally Closed (closed when de-energized) and 1/8" Normally Open (open when de-energized). The Three-Way Valve comes in one pipe size only: 1/8". Both are standard in brass or stainless steel. Permissible pressures: Two-Way Valves up to 300 lbs./sq. in. (AC) and up to 250 lbs./sq. in. (DC); Three-Way Valves up to 125 lbs./sq. in. (AC) and up to 50 lbs./sq. in. (DC). Adjustable Main Flow and By-Pass Flow available for Two-Way Valves. Twenty-four inch (24") leads. The Three-Way Valve is only slightly larger than the Two-Way Valve illustrated. It is only 3-5/16" from top to bottom. Twenty-Four inch (24") leads.

If you have been looking for a really small and really efficient solenoid valve, one of these two ASCO Midget Valves may be just what you need. We'll be glad to send you complete information (Bulletins 8262 and 8314) but in writing will you tell us something about your requirements?

These valves will be exhibited in Booth 550-551 at the
New York Power Show, November 27th to December 2nd.

When in need of Automatic Transfer Switches, Remote Control Switches, Contactors, Relays, and Specialized Electromagnetic Controls, come to us.



Automatic Switch Co.

379 LAKESIDE AVENUE • ORANGE, NEW JERSEY

When inquiring check CP 1966 on handy form, pgs. 2-3



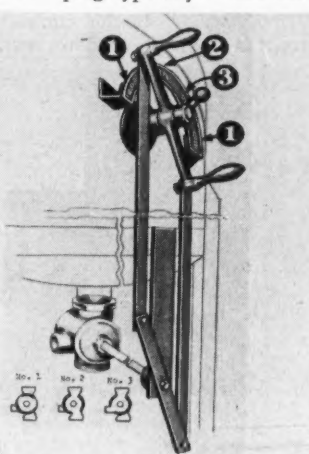
PROCESSING EQUIPMENT

Can't accidentally lose
processing tank contents
down sewer . . .

control handle of 3-way valve
locks, offers positive seal

Uses: Three-way hand-control
valve for regulating flow of liquid
contents of processing tanks. Espe-
cially effective for use on batch tanks
requiring fresh water after each pro-
cessing operation is completed.

Features: "The only 3-way valve
with a 2° plug type key. Eliminates



One-point control offered in 3-way
control valve — (1) closed, (2)
straight-thru flow, (3) side flow

guesswork, human errors, and other
control problems frequently experi-
enced with conventional 3° key type
valves."

Description: Action starts with
movement of control to desired po-
sition indicated on valve control quad-
rant (see illustration). Handles are
then locked in place, effecting com-
plete and positive seal up to 60
pounds working pressure. Plug re-
mains secure until handles are un-
locked and control reset at new posi-
tion. There is no chance of losing
tank's contents down sewer.

Usually fabricated in pure nickel,
nickel alloy, or stainless steel, valves
can be obtained in any desired metal.
Available in 2 1/2, 3, and 4" IPS sizes
or with sanitary threads.

Source: Product of the F. H.
Langenkamp Co., Dept. CP, 227-235
East South St., Indianapolis, Ind. . .
or for more information check CP
1967 on handy form, pages 2 and 3.

Fog filter principle
explained in report

Interesting report, "The Principle of
the Fog Filter", is issued by The R.
C. Mahon Co., Dept. CP, Detroit 34,
Mich. When inquiring specify CP
1968 on handy form, pages 2 and 3.



WHAT one fluid-straining method guaran-
tees . . . you never have to stop the flow to
clean the strainer?

ANSWER: Cuno AUTO-KLEAN is clean-
able (by hand or automatically) while it
continues to strain the fluid.



Fluid Conditioning
Removes More Sizes of Solids
from More Types of Fluids

For free bulletin on all-
metal disc-type AUTO-
KLEAN, address Cuno
Engineering Corp., 168
South Vine Street,
Meriden, Connecticut.

When inquiring check CP 1969 on handy form, pgs. 2-3

What's
"A New Solution?"

It's an article in **CHEMICAL PROCESSING**
describing a new way of solving a tough
plant operating problem. In each issue you
will find specific "case histories" showing
how these processing problems were solved.
Each article states the operating problem
. . . explains the process used and gives de-
tails of how problem was solved . . . shows
results secured.

Take a look at "New Solutions" articles in
this issue — they might suggest a "solution"
for some of your tough processing problems.

New Benjamin
EXPLOSION-PROOF
Signals

EXTRA-STRONG
EXTRA-PENETRATING
SIMPLIFIED MAINTENANCE

Type EXH
Explosion-Proof Horn

Type EXB
Explosion-Proof Buzzer

New Benjamin Explosion-Proof
Horns and Buzzers for hazardous
atmospheric locations, feature impor-
tant advancements that increase
durability and signal penetration of
existing noise levels and cut main-
tenance and operating costs.

NEW, EXPLOSION-PROOF CONSTRUCTION
Both new signals feature ample strength
to withstand the tremendous pressures of
internal explosions without breaking
down or permitting flame, hot gases or
sparks to escape. All joints are deep-
flanged and threaded to sufficient depth
to prevent escape of flame.

NEW, POWERFUL PENETRATING SOUND
Explosion-Proof Horn develops a distinc-
tive signal, demanding instant recog-
nition. The penetrating tone of the Ex-
plosion-Proof Buzzer is recommended for
less noisy locations.

* Approved by the Underwriters' Laboratories
for use in certain groups of Class I, II and III
hazardous locations.

BENJAMIN
Signals

Sold Exclusively Through Electrical Distributors

NEW, SIMPLIFIED MAINTENANCE
The horn-projector assembly
is "plugged in" for easy
installation. Entire assembly,
including signal mechanism is
removable without disturbing
signal housing, by unscrew-
ing threaded holding ring.

• Send for **FREE DATA** on:
• "Benjamin Industrial Signal
Equipment", including
complete specifications.
• Benjamin Electric Mfg. Co.,
Dept. LL, Des Plaines, Ill.

When inquiring check CP 1970 on handy form, pgs. 2-3

CHEMICAL PROCESSING

PROCESSING EQUIPMENT

It's easy to mount equipment on beams, columns and trusses with adjustable clamp . . .

cadmium coated device is designed for suspending 1500-lb loads from members 4 to 8 1/2" wide

Uses: For suspension of heaters, motor platforms, lighting fixtures, fans, blowers, conveyors, exhaust ducts, loud speakers and other types of equipment from structural members of building.

Features: Readily adjusted to fit structural members ranging from 4 to 8 1/2" wide. Quickly installed without drilling holes.

Description: Clamp can be attached to standard I, inverted T, or H beams as well as trusses and girders consisting of angles or channels back-to-back. It can be equipped with an adjustable angle fitting which provides for accurate vertical suspension from sloping or arched roof members (see illustration). The adjustable fitting also permits angle mountings from wall posts or columns.

For maximum loads to 1500 lb. The clamp is heavily coated with cad-

Adjustable beam clamp with adjustable angle fitting

mium for corrosion resistance. It is tapped for a 1 1/4" pipe thread connection.

Source: Beam clamp is a development of Thompson Electric Company, Dept. CP, 1101-88 Power Ave., Cleveland 14, Ohio . . . or for more information check CP 1971 on handy form, pages 2 and 3.

Projects filmstrips and slides in small or medium rooms . . .

all three objectives available are achromatically and anastigmatically balanced

Uses: For projecting filmstrips and 2 x 2" slides in small or medium size rooms.

Features: Three objectives are available: 3 1/2", f/3.5; 5", f/3.75; and 7", f/3.65. All are balanced achromatically and anastigmatically for accurate reproduction in either color or black-and-white.

Description: Heat from 150-watt bulb and 2-element aspheric condensing system is absorbed by special glass which protects film. Front of instrument rotates 360° and stops anywhere, assuring perfect positioning and up-right images. Screen image is raised or lowered by lever.

Filmstrip unit is easily loaded. Insert end of film in slot, and turn either of the dual advancing knobs. Absence of pressure plates prevents damaging the film emulsion. Film is supported only at edges and held flat by tension. For changing from single to double frame filmstrip, a hinged mask is flipped aside. Change from filmstrip to slides is accomplished by removing filmstrip unit.

Source: Educator 150 Delineascope is made by American Optical Company, Dept. CP, Southbridge, Mass. . . . or for more information check CP 1972 on handy form, pages 2 and 3.



lift trucks are sensitive, too

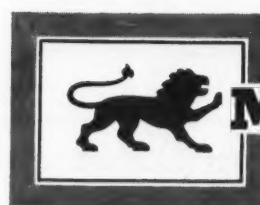
The lift truck driver who judges tires by the seat of his pants isn't far wrong, cost-wise. Mono-Cushions will save you plenty on repairs by giving your trucks (and drivers) an easier ride than any other type of industrial tire, size for size. They'll drastically reduce maintenance on steering mechanisms, bearings, differentials, universals, transmissions—any part of the truck affected by shock or shock load.

Mono-Cushions will cut costs in other ways, too. They're long-wearing, they need no servicing, and they're puncture-proof—go anywhere in the plant. They're easy on loads, easy on floors. They're stable, sure-footed.

The leading manufacturers of industrial vehicles use Mono-Cushions as original equipment. Replacement tires available through the manufacturer of your equipment or his distributors.

Mono-Cushion
INDUSTRIAL VEHICLE TIRES

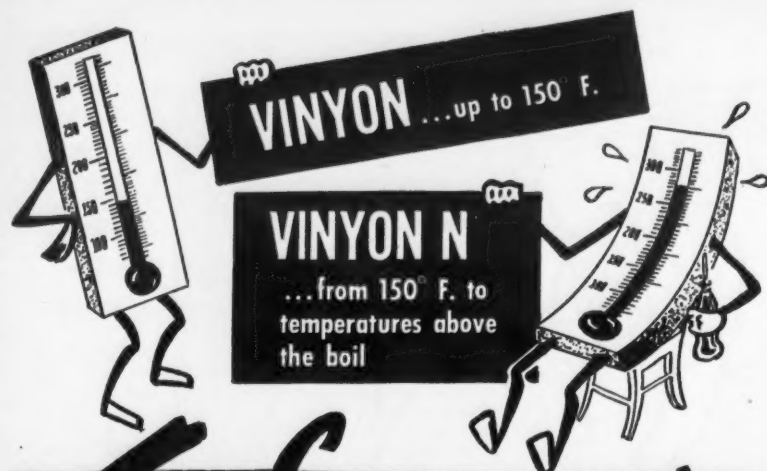
TOUGH ALL THE WAY THROUGH
CUSHION ALL THE WAY THROUGH



THE
MONARCH
RUBBER COMPANY

600 LINCOLN PARK • HARTVILLE, OHIO
SPECIALISTS IN INDUSTRIAL SOLID TIRES
AND MOLDED MECHANICAL RUBBER GOODS

When inquiring check CP 1973 on handy form, pages 2-3



Tops for broad-range CHEMICAL FILTRATION

NFM VINYON† and VINYON N† are excellent general purpose filter cloths. They are available in a variety of weaves and in any desired standard width from 26" through 72" or as made up filter element covers.

Over Forty Years of weaving experience have given us the "know how" so necessary to the production of top quality Industrial Filtering Fabrics. We weave all of our Synthetic Fiber Cloth including Glass, Nylon, ORLON* (an acrylic fiber cloth), Saran, VINYON†, and VINYON N†.

Write us about your requirements, we'll be glad to send test cloths, if you are not sure which cloth material is best.

*TM—E. I. duPont de Nemours
†TM—UCC

"Excellent Resistance—No Attack" are the operating reports when these filter cloths are used for filtering:

ACIDS

SULPHURIC
HYDROCHLORIC
NITRIC
HYDROFLUORIC
AQUA REGIA

CAUSTICS

SODIUM HYDROXIDE
POTASSIUM HYDROXIDE

and

CHLORINE or BROMINE WATER
SILVER NITRATE
TANNIC ACID
MANY OILS, FATS and WAXES



General Offices & Mills: New Haven 14, Conn.
Western Office & Factory: Salt Lake City 1, Utah

Sales Offices—Representatives

Chicago, Ill. Cincinnati, Ohio Houston, Texas Oslo, Norway Johannesburg, South Africa
2627 West 19th St. Roselawn Center Bldg. 1406 Second National Bank Bldg. Nicolai Frils Edward L. Bateman

When inquiring check CP 1974 on handy form, pgs. 2-3

PROCESSING EQUIPMENT

When operating hazards occur, control shuts off compressor and sounds alarm . . .

provides constant protection and eliminates hazard of blowing out the head

Uses: Designed to be applied to any vertical ammonia compressor to cut off power to compressor when emergency occurs within machine, such as a broken suction valve cage screw, a broken valve, a slug of liquid, or a loose connecting rod.

Features: Eliminates hazard of blowing out head, avoids shut down, and saves equipment from destruction.

Description: Safety head control picks up movement caused by operating difficulty. As safety head spring and shaft moves up under rising pressure on head, micro switch is set in operation. This stops compressor and sounds alarm or shuts off liquid line. Horn sounds alarm simultaneously with compressor stoppage and liquid line shut off.

The special re-set type micro switch is set to precision tolerance. Special high temperature and pressure V packing and retainers are provided.

Source: Safety Head Control Co., Dept. CP, 3759 So. Damen Ave., Chicago 9, Ill. . . or for more information check CP 1975 on handy form, pages 2 and 3.

Control air, water or oil precisely to 250 psi with 1/4, 1/2, 3/8" valves . . .

adjustment graduations represent 1/100 of pipe area; for control to and from cylinders

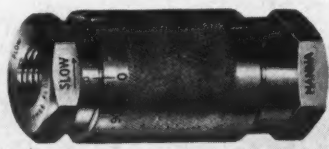
Uses: For precision speed control of low pressure cylinders; special valve available for use with tubing. Suitable for air, water or oil at pressures to 250 psi and temperatures to 250°F., also for mounting in any position.

Features: Three standard valves for cylinder applications embody micrometer graduations. Valves are designed so inside construction is not damaged if excessive torque is applied during installation. All metal parts are made of aluminum except for the stainless steel springs. Seals and poppets are of molded synthetic.

Description: Available sizes are 1/4, 3/8, and 1/2". Another size 1/4" for tubing, does not have micrometer adjustments. Face of one end of valve is marked "Controlled Flow Out — Free Flow In" and the other end face is marked "Controlled Flow In — Free Flow Out". Con-



View shows rising spring, shaft, switch, and alarm horn



Valve with micrometer adjustments



You get it... with a Cleveland Air Vibrator. Whether it's gentle persuasion your equipment needs, or powerful, hammer-like blows, there's a Cleveland Air Vibrator to keep production at peak efficiency, at minimum cost.



TYPE "F"

Type F is a rugged and powerful Cleveland Air Vibrator — readily adaptable to screens, chutes and hoppers . . . Type LSRR is a workhorse, equipped with a cast steel male bracket which fits snugly the female bracket that is standard equipment on most covered hopper railroad cars.



TYPE "LSRR"

Type UH is a quick attachment air vibrator, for handling equipment requiring vibration for short intervals, and on which a permanent installation might impede production.



TYPE "UH"

Our portable lightweight — Type SA, for light applications of speeding and feeding the flow of materials — comes equipped with swivel connections to save hose. Won't kink or buckle.



TYPE "SA"

Hard-chrome plated pistons assure starting and smooth operation on all types of Cleveland Air Vibrators. Catalog No. 105, giving complete details, is yours for the asking.



2707 Clinton Ave. • Cleveland 13, Ohio

When inquiring check CP 1976 on handy form, pgs. 2-3

CHEMICAL PROCESSING

Scott Air-Pak (TRADE MARK)

used at PENNSALT for
Protection of Workers
in TOXIC AREAS



Pennsylvania Salt Manufacturing Co. of Philadelphia makes regular use of Scott Air-Pak Safety Breathing Equipment for emergency or routine maintenance work in toxic areas.

Writes the Safety Director of this large, long-established chemical processing plant: "Pennsalt uses Scott Air-Pak in its plants for worker protection on emergency jobs where men are exposed to gases such as chlorine, ammonia or acid gases. Much routine work requires the use of protective equipment that will provide an independent atmosphere for entering tank cars before cleaning, cleaning rotary kilns, etc. The Scott self-contained equipment assures the operator a source of air entirely independent of the surrounding atmosphere."

Scott equipment used at Pennsalt includes:

SCOTT SLING-PAK (upper right): self-contained lightweight Scott unit for work of short duration. Weight 19½ lbs.

SCOTT EXTENSION HOSE ASSEMBLY: permits safe, comfortable breathing for several workers over long periods, at any distance from air supply. See your safety equipment dealer, or write us, for full details about how Scott Air-Pak can be used to good advantage in your plant.



SAFETY EQUIPMENT DIVISION
Scott
AVIATION
CORPORATION
242 Erie Street, Lancaster, N. Y.
CANADA: SAFETY SUPPLY CO. BRANCHES IN ALL PRINCIPAL CITIES
EXPORT: SOUTHERN OXYGEN CO., 157 Chambers St., New York 7, N. Y.

When inquiring check CP 1977
on handy form, pgs. 2-3

PROCESSING EQUIPMENT

trolled flow means that the orifice controlling the flow can be adjusted from zero to full size opening with one revolution of adjustment sleeve. Graduations are in hundredths of a revolution, with each hundredth representing 1/100th of the pipe area. Free Flow means unrestricted flow through an orifice equal to the pipe area.

Source: "Flo-Set" speed control valves are made by Hanna Engineering Works, Dept. CP, 1765 Elston Ave., Chicago 22, Ill. . . or for more information check CP 1978 on handy form, pages 2 and 3.

Bore of 17" and stroke of 19"
characterize these two
compressors . . .

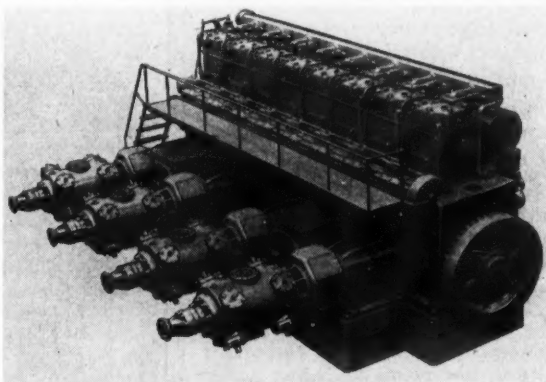
eight-cylinder model develops 2000 hp; ten-cylinder model develops 2500 hp

Uses: Compressors for gas transmission pipelines, natural gasoline plants, gas utilities, chemical plants, and similar applications.

Features: Fuel consumption curve from rated load to emergency overloads is essentially flat, indicating a wide range of optimum operating conditions.

Description: Compressors are built in 2 sizes. Eight-cylinder model has 4 compressor cylinders, develops 2000 hp; ten-cylinder model has 5 compressor cylinders, develops 2500 hp. Both operate at 300 rpm, have 17" bore and 19" stroke. Power source is a 2-cycle engine connected to camshaft and governor by separate chain drives.

Power pistons incorporate oil-cooled heads and skirts. Power cylinders have spiral flow, high velocity cooling system which minimizes sedimentation and scale formation in jackets. Water jackets cover nearly the entire length



Model HLA-8 compressor develops 2000 hp

of cylinder. Water leaves cylinder by means of outside jumper and progressively cools head and exhaust manifold. Heads are of steel, designed to give high velocity flow of water past spark plug and gas injection valve.

All main and connecting rod bearings are precisely machined, and can be fully loaded without break-in period. Initial takeup is unnecessary. Bearing shells are completely interchangeable between like rods without filing, fitting, or scraping. Compressor piston rods, compressor valve seats, valve chair set screws, crosshead pins, and many other parts are induction hardened; wearing surface is therefore very hard while interior remains unaltered to provide a strong, high-impact base.

Source: Model HLA compressors are built by Clark Bros. Co., Inc., Dept. CP, Olean, N. Y. . . or for more information check CP 1979 on handy form, pages 2 and 3.

Dependable FIRE PROTECTION...

STARTS WITH
ANSUL
Water-tight
CONSTRUCTION



CUTAWAY
VIEW, ANSUL
MODEL 20-B

The new, improved Ansul Model "B" Extinguishers have the greatest fire-killing ratings* ever attained by hand portable fire extinguishers. In addition, **WATER-TIGHT CONSTRUCTION**, (exclusive with ANSUL) has resulted in far greater dependability than any other dry chemical extinguisher.

In fire protection equipment, the best is none too good. Accordingly, Ansul engineers conduct continuing research for improving Ansul Extinguishers and Dry Chemical. Ansul Quality has set a high standard for newcomers in the dry chemical fire extinguisher field. This unparalleled standard of quality is constantly being raised by Ansul research and development.

Send for File No. 605. You will receive a variety of helpful printed matter. Included is our latest catalog which describes Ansul Extinguishers of all sizes — from the small Ansul Model 4 to Ansul Piped Systems and Ansul 2000 lb. Stationary Units.

*Factory Mutual Laboratory Reports of Examinations and Tests.

ANSUL
CHEMICAL COMPANY
FIRE EXTINGUISHER DIVISION
MARINETTE • WISCONSIN

DISTRIBUTORS
IN ALL PRINCIPAL CITIES IN THE
U. S. A., CANADA AND OTHER COUNTRIES

"PLUS-FIFTY"
DRY CHEMICAL
IS MORE DEPENDABLE
ALL-WAYS!

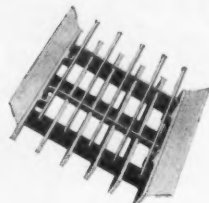
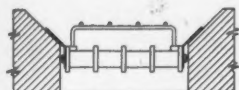


THIS TRADE MARK ASSURES YOU OF QUALITY PRODUCTS

When inquiring check CP 1980 on handy form, pgs. 2-3

THE IRONY OF THE MAGNETIC GRATE

Bauer



A permanently magnetized grate is such an obvious thing that we should have thought of it years ago. But we didn't; and that's the irony of it. A customer gave us the idea!

When flowable materials are poured or dumped or shoveled through the Magnetic Grate, iron and steel inclusions simply can't get by. What's more, the grate catches large debris such as strings, rags, paper, and sticks.

Installation consists merely of laying the Magnetic Grate on a frame in a hopper or floor opening as shown in the drawing. The size may be anywhere from 2" x 4" to as many feet wide and long as desired.

Ask for Bulletin M-3-A which describes all Bauer Permanent Magnetic Separators. Write, phone, or wire us while you're thinking of it.

THE BAUER BROTHERS CO.

1728 SHERIDAN AVE. • SPRINGFIELD, OHIO

When inquiring check CP 1981 on handy form, pgs. 2-3

QUICK FACTS about Carpenter STAINLESS TUBING



—guaranteed on every shipment



These useful bulletins give you technical information on corrosion resistance, physical constants, fabrication, etc. Return the coupon for your set of Carpenter Stainless Tubing QUICK FACTS Bulletins.

RETURN COUPON FOR YOUR BULLETINS

THE CARPENTER STEEL COMPANY
Alloy Tube Division, Union, N. J.

Please send me a set of QUICK FACTS for Users of Stainless Tubing, and put my name on the list to receive future bulletins.

NAME _____ TITLE _____
(Please Print)
COMPANY _____
ADDRESS _____
CITY _____ ZONE _____ STATE _____

When inquiring check CP 1982 on handy form, pgs. 2-3

PROCESSING EQUIPMENT

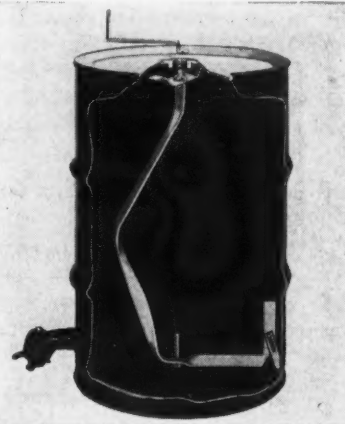
**Settled contents of drums
are given "lab mix"
in 10 minutes . . .**

agitator is adapted for either hand or power agitation; is suitable for many heavily pigmented goods

Uses: Agitators are made in sizes to fit 30- and 55-gallon drums, and are suitable for thoroughly mixing many heavy pigmented goods which often settle during storage. Adaptable to either hand or power operation.

Features: Affords a "laboratory mix" in as little as 10 minutes, maker reports.

Description: American-Ingraham agitator consists of a 1-3/8 x 3/16" single-piece curved steel blade, held in position at drum's bottom by a pivot bolt, and at top by a lock bracket. Square shank is provided at blade's upper end for either hand or power agitation.



Agitators fit 30-, 55-gal drums

Chime scraper on blade's bottom loosens settled material from chime of drum. Various planes of the agitator blade are turned at angles to facilitate raising settled material from bottom of drum and mixing it thoroughly through-out contents.

Agitator is easily removed from drum by clipping lock bracket and threading blade out through bung hole.

Source: Product of The American Pulley Company, Dept. CP, 4200 Wissahickon Ave., Philadelphia 29, Pa. . . or for more information check CP 1983 on handy form, pages 2 and 3.

**Pneumatic method of lifting sewage
requires little attention; has
constant efficiency . . .**

compressed air ejector eliminates trouble of cleaning screens and pumps; works only at full capacity

Uses: For raising sewage, water, and solid and waste material in suspension from low points to higher sewer lines. For treatment plants of refineries, breweries, pharmaceutical plants, paper mills, etc.

Features: Unlike centrifugal submerged type sewage ejector or sump pump, pneumatic sewage ejector has no parts in contact with sewage which require inspection or attention. Because there are no screens, clogging cannot occur and efficiency of system remains constant. System works only at full capacity and therefore the total yearly power consumption is usually less than that of a centrifugal pump. Ejector requires no wet-well and is flushed at every cycle.

Description: Compressed air ejector system operates by allowing sewage to flow into a 1"-thick cast iron tank. When tank is full, compressed air is admitted automatically above sewage, thus forcing it out through the discharge line.

Control system uses a lead-covered spun copper float that



CONTINUOUS MIXERS

**DOUBLE AGITATOR
TYPE
INTENSIVE
FLEXIBLE**



These ruggedly built Mixers provide a considerable range of adjustment to suit individual requirements. Many sizes available up to 16 ft. long agitating chambers. Write today for literature to Sprout-Waldron & Co., Inc., 10 Waldron St., Muncy, Penna.

Vertical Mixers, Attrition Mills, Rotary Feeders, Ribbon Type Mixers, Crushers, Knife Cutters, Continuous Mixers, Roller Mills, Separators, Pulleys

SPROUT-WALDRON

When inquiring check CP 1984 on handy form, pgs. 2-3

SAFETY EQUIPMENT FOR ALL INDUSTRIES

IPCO

**First Aid
CABINETS**



- Meet State and Insurance Company Requirements.
- Heavy all-steel construction. White enamel finish.
- Clear glass door. Contents may be seen at all times.
- Furnished with or without dressings as illustrated.



Write for Bulletin No. A-1150

Safety Equipment for all Industries

INDUSTRIAL PRODUCTS COMPANY

2814 N. FOURTH STREET • PHILADELPHIA 33, PA.

When inquiring check CP 1985 on handy form, pgs. 2-3

PROCESSING EQUIPMENT

floats on the liquid and slides on a float rod having an upper and lower stop. When float strikes the upper stop, the rod is lifted, thereby tripping a float switch which actuates a solenoid valve and the compressor motor starter. Valve admits compressed air to the space above the sewage. Time consumed in discharging the rated capacity of the tank is much less than half a minute.

As the sewage level falls, the float slides down the float rod until it strikes the bottom stop. Rod is carried down tripping the switch which opens the circuit of the solenoid and stops the motor driven air compressor. Air from the ejector tank vents through the valve to atmosphere, not through the compressor.

Collecting tank is tested to 200 psi. Solids, rags and waste easily pass through the large inlet and outlet openings.

Source: The Blackburn-Smith Mfg. Co., Inc., Dept. CP, Hoboken, N. J. . . . or for more information check CP 1986 on handy form, pages 2 and 3.

Air tool noise reduced 99% by efficient muffling . . .

multipurpose tool and companion model for one hand operation are fast, powerful

Uses: Model 504 is for nut-running up to 3/8" bolt size. Model 510 is for nut-running up to 3/4" bolt size. Model 504 may also be used for multipurpose operation in drilling up to 3/8" diameter or step drilling to 3/4", reaming up to 9/16" diameter, tapping up to 3/8" diameter, driving screws up to 3/8" machine or number 20 wood. Also, hole sawing in sheet metal up to 2" diameter; broken stud and cap screw removal up to 3/8", driving and removing 3/8" studs, masonry drilling up to 3/8", and running wire brushes up to 3/8" shank size.



Air tools have automatic lubrication, built-in air strainers

Description: Model 504 is a completely redesigned tool, 20% more powerful and 65% faster than its predecessor. Due to extremely effective muffling it takes 100 new No. 504 impact tools to equal noise of former model. Weighs 5-3/4 lb, 8-9/16" long.

The other tool, No. 510, is a completely new size tool. Designed for jobs where it is necessary to have one hand free to hold work and pick up next nut to be run. It weighs 11-1/4 lb and measures 10-7/8" long. Built-in, automatic lubrication in both tools and built-in air strainers contribute to operating efficiency and lengthen service life of instruments.

Source: Ingersoll-Rand Co., Dept. CP, 11 Broadway, New York 4, N. Y. . . . or for more information check CP 1987 on handy form, pages 2 and 3.

NOVEMBER, 1950

Features: Streamlined and well balanced for easy operation. Large, easy-to-grip reverse caps are deeply grooved so that tools may be quickly reversed. Palm fitting pistol grip handles makes these tools easy and comfortable to operate over prolonged periods. Scientific muffling lowers operator fatigue and increases morale and safety.



4 BIG ADVANTAGES!

MAGIC GRIP SHEAVE

YOU CAN MOUNT a *Magic Grip* sheave faster than any other sheave you can buy . . . and demount it just as fast. When you mount a *Magic Grip* sheave it runs true. It will not slip or jam. It always comes off easily.

Even if you don't change sheaves often, you should have *Magic Grip* sheaves on every drive to eliminate the possibility of shaft and bearing damage when ordinary sheaves are hammered or pried on or off.

WIDEST V-BELT LINE

Get everything you need for your V-belt

drives from one reliable source. *Texrope* offers the broadest line of V-belts, standard and variable speed sheaves and speed changers in the industry. And you also get the extra engineering skill that comes from having more industrial V-belt installations than any other manufacturer.

Get your copy of the 144 page *Texrope* Pre-Engineered Drive Manual from your A-C Authorized Dealer or Sales Office or write for Bulletin 20B6956.

ALLIS-CHALMERS, 1151A SO. 70 ST.
MILWAUKEE, WIS.

A-3022

Texrope and *Magic Grip* are Allis-Chalmers trademarks.

ALLIS-CHALMERS

When inquiring check CP 1988 on handy form, pgs. 2-3

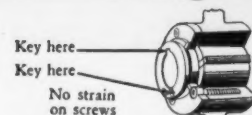
TEXROPE

Greatest Name in V-Belt Drives



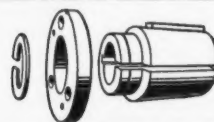
ONE PIECE MOUNTING

Bushing and sheave go on together. One motion mounting. Alignment is easier. Sheave is on right first time.



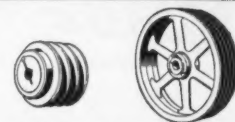
POSITIVE DRIVE

Bushing is keyed to both shaft and sheave. No slipping. No sheared screws. No jammed bushings from bent screws.



FULL CIRCLE GRIP

Bushing split full length with separate collar. Grips shaft full length around full diameter. No forcing or distortion. Grip easily broken. No hammering.



WIDE SIZE RANGE

Magic Grip sheaves are available from 3" pitch diameter up. Style NC bushing for smaller sizes and Style C bushing for larger sizes.

Sold . . .
Applied . . .
Serviced . . .

by Allis-Chalmers Authorized Dealers, Certified Service Shops and Sales Offices throughout the country.



MOTORS — 1/2 to 25,000 hp and up. All types.

CONTROL — Manual, magnetic and combination starters; push button stations and components for complete control systems.



PUMPS — Integral motor and coupled types from 3/4 in. to 72 in. discharge and up.



4 TIMES HIGHER SNAG RESISTANCE

(standard needle test)



SURETY

SURESEAL
Synthetic Rubber
INDUSTRIAL GLOVES

plus . . . 10 times higher abrasion resistance, much higher chemical resistance—Sureseal Synthetic Rubber is miles ahead on all counts. That's why Sureseal Gloves give you longer wear, greater hand safety, MUCH lower glove costs.

For an extra margin of safety, extra protection against dermatitis, get Sureseal Gloves with Surety's patented Turn-Cuff—cuff turned up prevents liquids from running onto arms or inside gloves, cuff turned down gives two-inch longer protective gauntlet.

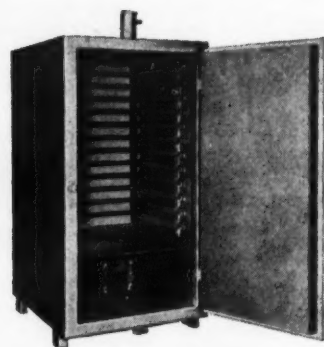
Ask your distributor about Sureseal Gloves—or write direct.



In Canada: Safety Supply Company, Toronto, Ontario

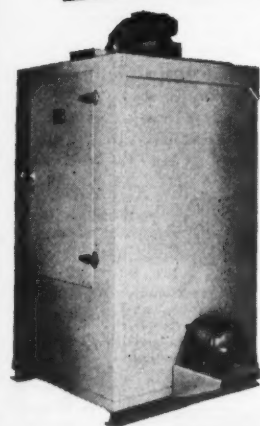
When inquiring check CP 1989 on handy form, pgs. 2-3

GEHRICH
Recirculating
OVENS
Gas • Electric • Steam



**for Faster • Safer
More Uniform Drying**

A complete range of sizes in bench, cabinet and truck loading types for laboratory and batch drying, baking and curing processes. Write for new bulletins.



GEHRICH OVEN DIVISION

W. S. ROCKWELL COMPANY

220 ELIOT STREET FAIRFIELD, CONN.

When inquiring check CP 1990 on handy form, pgs. 2-3

PROCESSING EQUIPMENT

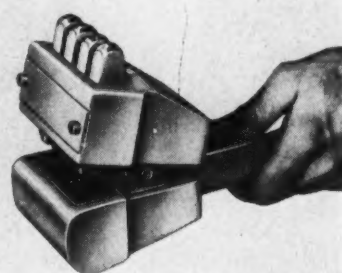
Announces hand tool for stamping thin metals . . .

accommodates almost any size and number of characters

Uses: Marking device for stamping steel sheet, strip, and other flat thin metal.

Features: Accommodates almost any size of number of characters, maker reports.

Description: Finger pressure swivels the top upward (see illustration)



Stamps of metal marking device are readily changed

so the holder can be slipped over the pieces of metal to be marked. When pressure is released, springs return the top to marking position. Marking operation is completed by striking each stamp individually with a lightweight hammer.

Springs retain stamps in the holder for rapid changing. Bottom of holder is cast aluminum containing a piece of steel serving as an anvil; distortion of metal stamped is held to a minimum.

Source: Model JG-1 marking device is a product of the M. E. Cunningham Company, Dept. CP, 117 E. Carson St., Pittsburgh 19, Pa. . . or for more information check CP 1991 on handy form, pages 2 and 3.

Combines speed reducers into packaged units . . .

combinations are small, completely sealed

Uses: Integral combinations of company's standard miniature variable and fixed ratio drives for very low power applications requiring both speed reduction and variable speed.

Applications include use on timers, recorders, controllers, computers, indicating mechanisms, and similar devices.

Features: By combining variable ratio unit with the proper fixed ratio, variable output speed is obtained at any nominal speed, infinitely adjustable from 1/6 to 6.

For example, an 1800 rpm motor

*Filtering
Grading
Cleaning
Straining*

CORROSIVE-PROOF!

**H & K
PERFORATED
MATERIALS**

You have an extra guarantee of product purity and uniformity when you specify H & K Perforated. Stainless steel and other corrosive-resisting alloys are a specialty with us. Without delay, we can supply smooth, easy to clean surfaces, perforated to accurate, uniform, close tolerances . . . in the pattern most accurately suiting your needs. Unlimited patterns of perforated metals, rubber, plastic, etc., in gauges from tissue thickness to equivalent of 1" steel plate. Delivered in flat sheets, rolled, sheared, welded, brazed—or otherwise prefabricated to specification. "H & K Perforated" means clean, careful processing!

For full details—Write today for H & K Catalog No. 62, free on request.

**The Harrington & King
PERFORATING CO.**

5636 Fillmore St., Chicago 44, Ill.
114 Liberty St., New York 6, N. Y.

When inquiring check CP 1992 on handy form, pgs. 2-3

DAY
"Autoclean"
DUST FILTER

assures
CONSTANT AIR VOLUMES

Back pressures and air volumes vary in filters where sections must be shut down for cleaning, (line A). The automatic-continuous reverse jet cleaning action of the DAY "Autoclean" eliminates sectional cleaning shutdowns. When the DAY "Autoclean" is started, back pressure rises slightly, then levels off and remains constant, (line B). Such uniform back pressure assures the constant



air volumes necessary for maximum dust collection efficiency.

Here are

other important advantages

- Continuous-Automatic Operation
- High Cleaning Efficiency
- High Air to Cloth Ratio
- High Filtering Efficiency



Licensed by H. J. Hersey, Jr.

Write-to-DAY for Bulletin No. 491

The DAY Company

852 3rd Avenue, N. E., Minneapolis 13, Minn.
IN CANADA Box 70, Fort William, Ontario
Branch Offices in St. Louis, Buffalo and Welland, Ontario

When inquiring check CP 1993 on handy form, pgs. 2-3

CHEMICAL PROCESSING

N & F SILOS Carry Heavy Superstructure

Without extra supports, the Neff & Fry silos shown in the photograph carry the heavy machinery for screening and grading silica sand. This emphasizes the stamina of N & F Super-Concrete Stave construction.

N & F staves are formed under tremendous hydraulic pressure, then watered and cured. This results in a composition of extreme density and high compressive strength.

Thousands of N & F Silos are being used for storing many kinds of flowable bulk materials—grain, sand, coal, clay, ore, chemicals, wood chips, seeds, peanuts, etc. We can cite numerous examples pertinent to your own storage and handling problems.

Before you decide upon storage bins, ask for complete information about N & F Super-Concrete Stave Silos. A copy of our interesting catalog will be gladly sent upon request.

THE NEFF & FRY COMPANY
EAST CENTRAL AVE., CAMDEN, OHIO

NEFF & FRY STORAGE BINS

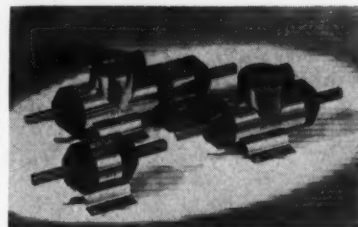
When inquiring check CP 1994 on handy form, pgs. 2-3



PROCESSING EQUIPMENT

coupled to combination unit having 4-section, 531,441:1 reduction will give output speed variable from 0.6 revolutions/day to 20 revolutions/day. Or if a single section, 2:1 reduction gear unit is used, all output speeds between 150 rpm and 5400 rpm are available.

Description: Units are small completely sealed, and retain features of



Packaged variable speed reducers

their individual components; they deliver 2 in.-lb of torque.

Design features include ball bearing shafts, and permanent lubrication. Fixed ratio sections are available in extruded or hobbled gears, and can be obtained in any of hundreds of standard ratios.

Source: Variable speed reducer units are made by Metron Instrument Company, Dept. CP, 432 Lincoln St., Denver 9, Colo. . . or for more information check CP 1996 on handy form, pages 2 and 3

UL approves connectors for wires carrying up to 600 volts . . .

connector consists of only three parts, can be re-used

Uses: Wire connector for general use in circuit wiring, fixture hanging, machine and appliance hook-up. . . wherever it is necessary to join 2 or more wires.

Features: Connector can be unscrewed and re-used.

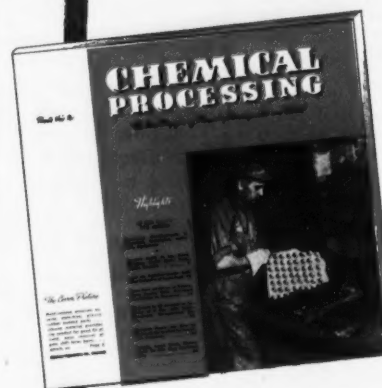
Description: Connector consists of only 3 parts: brass sleeve into which stripped wires are slid; brass set screw for holding them in place; and phenolic insulating shell which screws over brass sleeve to protect splice and prevent flash-over.

UL has approved this connector for all types of branch circuit wiring up to 600 volts. It is recommended for use on conduit, armored cable, non-metallic cable, and open wiring.

Source: Set screw wire connector is made by Ideal Industries, Inc., Dept. CP, 5073 Park Ave., Sycamore, Ill. . . or for more information check CP 1997 on handy form, pages 2 and 3.

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**CHEMICAL
PROCESSING**
without charge
Why?



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Creators of "king-size" magazines — giving greater
visibility, higher readability and more **READER ACTION**



PACKOMATIC Automatic Case Gluer-Sealer, above. Imprinter, right.

3,000 SHIPPING CASES PER HOUR LOADED, SEALED, IMPRINTED *Automatically*

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J. L. FERGUSON CO., 10110 Republic Ave. at Rt. 52, Joliet, Illinois

When inquiring check CP 1995 on handy form, pgs. 2-3

NOVEMBER, 1950

For Safety's Sake Use

DAYTON SAFETY LADDERS



Sizes 3 feet to 16 feet in height. (Measured from ground to platform.) With standard rubber safety shoes at no extra cost.

Maintenance men everywhere rely on Dayton Safety Ladders for maximum safety and convenience. Daytons are constructed of tested air-plane spruce and reinforced with rigid steel supports to give great strength and lightness of weight.

Handrails of steel guard the large roomy platform for added safety. Half of platform can be raised to form an extra step, when needed. These famous ladders can be set up instantly, are easy to carry and fold compactly for storing. Automatic locking feature insures safety while ladder is in use.

Write today for Bulletin No. 45

DAYTON SAFETY LADDER CO.

2339 GILBERT AVE.

CINCINNATI, OHIO

In Canada—Safety Supply Company—Toronto

When inquiring check CP 1998 on handy form, pgs. 2-3



● The important story of this radically simpler, more economical device for the continuous removal of condensate, air and non-condensable gases from steam lines.

This advanced steam trap, with no moving parts is free of valves, bellows and floats.

The Coe Drainator Bulletin No. 903-B will prove of interest and value to you whether your trap problems concern paper machinery, water heaters, heating systems, process dryers, cookers, distilling equipment or laundry and dry cleaning equipment, etc.

Write for Bulletin 903-B

The COE MANUFACTURING CO.
803 BANK STREET • PAINESVILLE, OHIO

DRAINATOR—THE ADVANCED STEAM TRAP

When inquiring check CP 1999 on handy form, pgs. 2-3

PROCESSING EQUIPMENT

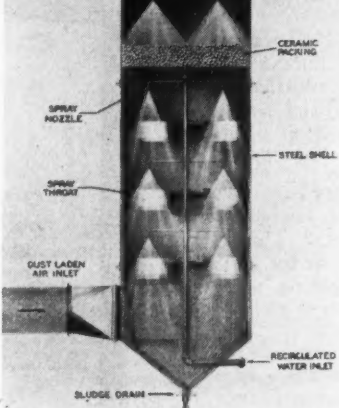
Last traces of dust removed from air by collector . . .

device is a compromise of impingement collector, spray tower, and packed tower

Uses: Collector specifically designed for ultimate recovery of industrial dust which cannot be suppressed by conventional type of dry or wet centrifugal collectors.

Features: System is a compromise of impingement collector, spray tower, and packed tower, utilizing the most advantageous combination of these basic principles. All 3 processes work simultaneously to impinge incoming gases against the lower wetted walls and vanes of chamber; to saturate the gases with water vapor; and to thoroughly and turbulently scrub the gases, thus removing the last traces of dust particles.

Description: System consists of 4 essential elements: steel shell; spray assembly; series of throat plates; and 1 or more beds of ceramic packing.



Shows dust collector's action

plates, each throat being fitted with overhead full jet spray nozzle so that finely divided spray fills throat opening. This action brings air and liquid into intimate contact. Air then passes upward through bed of loosely packed ceramics, which is also sprayed with water.

Purpose of packing is two-fold. First, each cubic foot contains a surface area of over 52 square feet, thereby presenting greater impingement area for a given space than is possible with any other means. Second, packing is placed at random, thus reducing free area through unit to about 70% of original area, based on the free cross section of the collector.

Velocity of air passing through bed is increased about 43%. This is of special importance in that air becomes quite turbulent and is thoroughly scrubbed. Air then passes through bed of dry ceramic packing located near top center outlet. This material acts as entrainment separator, and prevents liquid droplets from being blown out of the unit.

Being free of all moving parts, the system presents no maintenance problems. There are no rotors, plates, or cylinders, and no complicated baffling.

Source: Pemasco Dust Master Collector is product of Prater Pulverizer Co., Dept. CP, 1515 S. 55th Court, Cicero, Ill. . . . or for more information check CP 2000 on handy form, pages 2 and 3.

Here's the Flexible Hose that
HANDLES TOUGH SOLVENTS!



The compar tube in Resistoflex Hose withstands continuous contact with aromatic and chlorinated hydrocarbons

A compar tube in Resistoflex hose not only contributes toughness, tensile strength and flexibility, but also renders the hose impervious to many chemicals, solvents, oils and gases which permeate or attack other flexible materials. For example, compar is completely unaffected by: Benzene Hexachloride . . . Carbon Tetrachloride . . . "Freons" . . . Ether . . . Carbon Disulfide . . . "Parathion" . . . Toluene . . . Perchloroethylene . . . Tri-

chloroethylene . . . Styrene Monomer . . . "Chlordane" . . . Dibutyl Phthalate . . . and others. *Not recommended for water, or water soluble materials in appreciable concentrations.

If flexibility, light weight, ease of handling, and solvent resistance in a line can solve your problem—Resistoflex hose may be your answer. Sizes up to 1½ inch I.D., available in bulk or with fittings. Write us about it today,

RESISTOFLEX

CORPORATION

Belleville 9, New Jersey

SYNTHETIC FLEXIBLE PRODUCTS AND PARTS FOR INDUSTRY

When inquiring check CP 2001 on handy form, pgs. 2-3



No 5621
FIRM-GRIP
No. 5615
SMOOTH

LENGTH:
14 inches
GAUGE:
.045-.055
COLOR:
Brown
SIZES:
10-11-12

*Request sample and quotations.

The outstanding value and hand safety specification throughout industry. Heavy gauge, steam-cured, high age-resistance and exceptional durability with extra heavy reinforcement at points of wear. Long and short gauntlets in heavy and lighter gauge styles with all-over smooth surface also available in genuine neoprene latex.

SEIBERLING LATEX PRODUCTS COMPANY
AKRON 9, OHIO

When inquiring check CP 2002 on handy form, pgs. 2-3

Convention & Exhibit Schedule

- Nov. 15-18. National Paint, Varnish and Lacquer Association, Fairmont Hotel, San Francisco.
- Dec. 3-6. American Institute of Chemical Engineers (Annual Meeting), Columbus, Ohio.
- Dec. 4-5. Chemical Specialties Manufacturing Association (Annual Meeting), Hotel New Yorker, New York.
- Dec. 6. Society of Cosmetic Chemists (Fall Meeting), Biltmore Hotel, New York.
- Dec. 13. Synthetic Organic Chemical Manufacturers Association, Commodore Hotel, New York.

1951

- Jan. 15-18. Plant Maintenance Show, Cleveland.
- Jan. 18-20. Seventh Annual National Technical Conference of the Society of Plastics Engineers, Inc., Hotel Statler, New York.
- Feb. 28-Mar. 2. SPI Reinforced Plastics Division Meeting (6th Annual Technical Session), The Society of The Plastics Industry, Edgewater Beach Hotel, Chicago.
- Mar. 5-7. 1951 Pittsburgh Conference on Analytical Chemistry and Applied Spectroscopy, William Penn Hotel, Pittsburgh.
- Mar. 13-16. National Association of Corrosion Engineers (Annual Conference and Exhibition), Hotel Statler, New York.
- April 3-6. 21st Annual Safety Convention & Exposition, Hotel Statler, New York.
- April 16-18. American Society of Lubrication Engineers, Bellevue Stratford Hotel, Philadelphia.
- April 30-May 4. Fourth National Materials Handling Exposition, International Amphitheatre, Chicago.
- May 23-24. The American Society for Quality Control (Annual Convention), Cleveland.
- May 24-25. SPI Annual National Meeting, The Society of The Plastics Industry, Greenbrier Hotel, White Sulphur Springs, West Virginia.
- Sept. 10-14. Instrument Society of America, Coliseum, Houston, Texas.

Ball bearing lubricants resist temp extremes

Silicone greases described in 4-page bulletin are relatively inert and non-volatile, semi-inorganic lubricants. Good lubricity combined with freedom from gumming, heat stability, and resistance to water adapt them for lubrication service under temperature extremes.

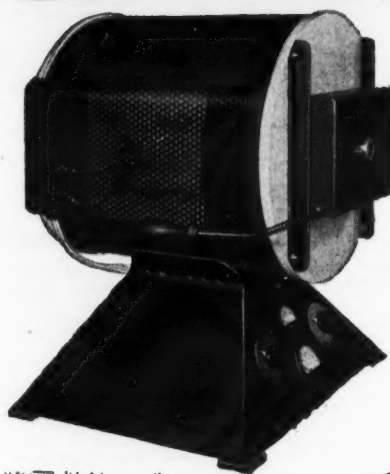
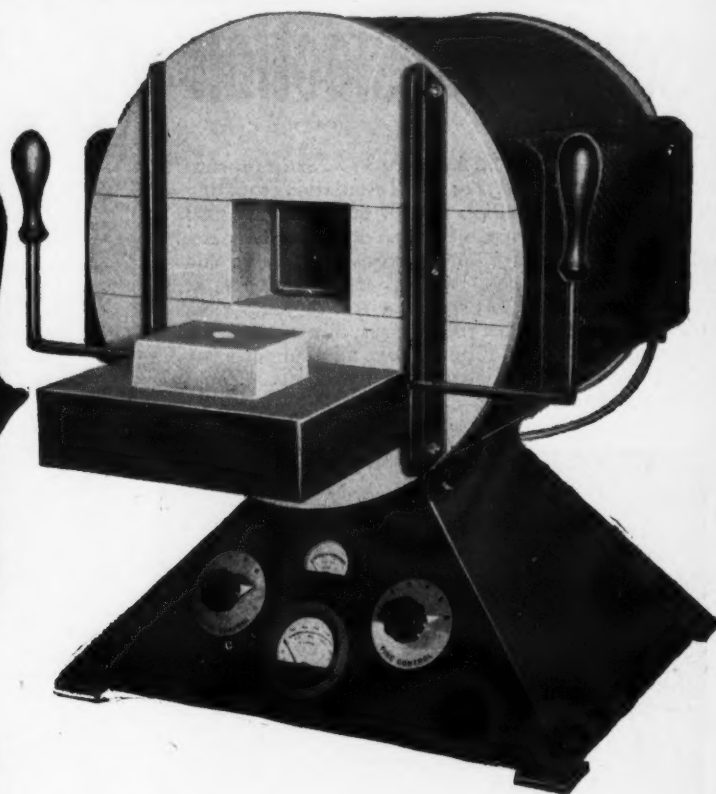
Three specific greases are described: No. 33, for temperatures from -100 to 300°F and speeds to 70,000 rpm; No. 44, for temperatures from -40 to 350°F and speeds to 20,000 rpm; and No. 41, for temperatures from -20 to 400°F and speeds to 1000 rpm. Grease No. 33 is used for lubricating ball bearings of high-speed gyros. Grease No. 44 is used in refrigerator, electric razor, and blower bearings. Grease No. 41 is used on bearings of oven conveyor systems, kiln and oven trucks, and pumps handling hot liquids.

Much technical data is contained in Bulletin BG-2, issued by Dow Corning Corporation, Dept. CP, Midland, Mich. When inquiring specify CP 2003 on handy form, pages 2 and 3.

HIGH TEMPERATURES 2000° F. TO 2600° F.

are easily maintained
in the NEW

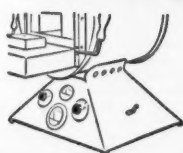
**HEVI DUTY
G-05-PT
LABORATORY
FURNACES**



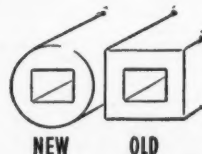
Use the G-05-PT electric furnace for heating metals and alloys, ceramic firing, hardening tool steel, ash determinations, and general laboratory work.

Heating elements are silicon carbide bars extending above and below the refractory muffle. The muffle may be sealed to permit the use of an externally prepared atmosphere.

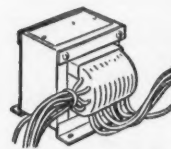
Write for Bulletin LAB-250 or SEE
YOUR LABORATORY SUPPLY DEALER.



Instruments and Controls Operate at Approximately Room Temperature



Improved Insulation Design with Minimum of Radiation Loss



48 Steps of Control Through a Hevi Duty Tap-Changing Transformer



Instruments Easily Accessible Through Removable Panels

HEVI DUTY ELECTRIC COMPANY

HEAT TREATING FURNACES **HEVI DUTY** ELECTRIC EXCLUSIVELY

DRY TYPE TRANSFORMERS — CONSTANT CURRENT REGULATORS

MILWAUKEE 1, WISCONSIN

When inquiring check CP 2004 on handy form, pgs. 2-3

OVER 5 MILLION POUNDS OF service satisfaction

B&W TUBE SUPPORTS are cast to last in processing services — and they do. Installations totalling more than five million pounds of these alloy steel castings have been subjected to operating temperatures up to 2000 F, and corrosive, oxidizing and abrasive conditions ranging from ordinary to severe . . . and not a single service failure has been reported. Let B&W cast this outstanding service satisfaction into the next tube supports you need for new equipment or replacements. You'll be glad you did.



CAST TO LAST

Products of B&W Engineering for Economy



BABCOCK & WILCOX

S-397

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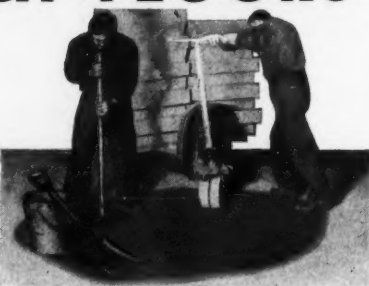
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Tear Off Here

"That's Interesting"

Ignitron rectifiers and DC motors improve sugar mill operations

Typical of new jobs being found for ignitron rectifiers is the sugar-mill tandem, which crushes the juice from sugar cane. A tandem consists of a set of crushers and three roll mills, each supplied by a conveyor fed by the preceding unit. The speed of the entire tandem must be adjustable over a range of $1\frac{1}{2}$ to 1 to allow for a varying supply of cane. The speeds of individual mills must be controllable to insure coordination.

Tandems are customarily driven either by steam engines or by wound-rotor motors, fed by an adjustable-frequency turbine generator. But the flexibility required is more readily provided by a new system consisting of an ignitron and DC motors. The speeds of the roll are changed simultaneously by adjusting the field of a single exciter whose output supplies power to all the motor fields, and individually by separate rheostats in each motor field.

The entire tandem is reversed by reversing the voltage of the common exciter. For starting, the ignitron voltage is raised gradually from zero, thus eliminating starting resistance and giving smoother acceleration with low inrush current.

As compared to the wound-rotor motor drive, the ignitron scheme requires less maintenance, and presents a load of higher power factor. Special generators are eliminated. (As reported in Westinghouse Engineer, Westinghouse Electric Corp., Pittsburgh 30, Pa.)

Fast assay for alkaloids

A fast method of determining minute amounts of alkaloids is said to depend on ability of many alkaloids to form with acidic dyes, salt-like addition compounds soluble in organic chemicals. Dye is estimated colorimetrically after decomposition of the addition compound. The procedure is reported applicable in control testing of solutions of alkaloids during processing. (U. S. I. Chemical News, U. S. Industrial Chemicals, Inc., 60 E. 42nd St., New York 17, N. Y.)

50-50 display of identical items in glass and tin boosts sales

Recent study indicates effectiveness of equal display of glass packed foods, along with identical items in cans. The 8-week project involved 12 Philadelphia super-markets. Checks were made on sales when only tinned items were displayed and when glass packed foods were given equal space on serve-yourself shelves. Sales showed that equal display of glass packed products along with tinned resulted in sale of more merchandise rather than change from one container to another, with increase being between 35 and 43%. (Owens-Illinois Glass Co., Toledo, Ohio)

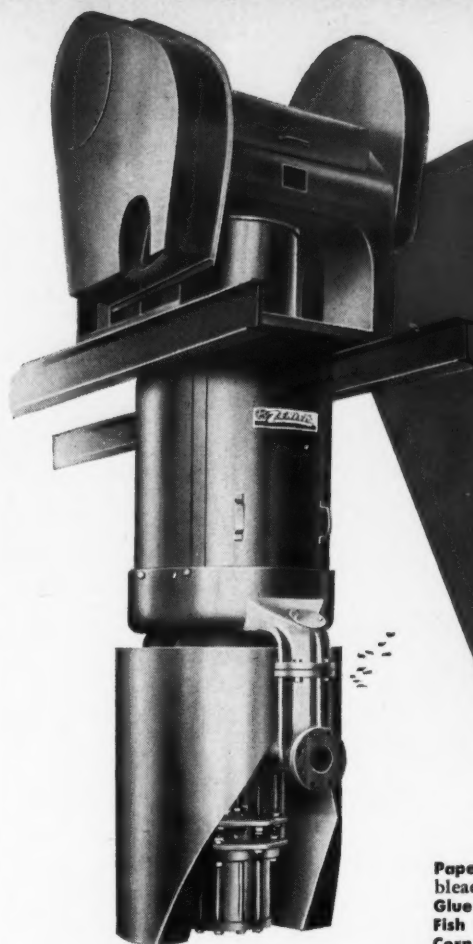
A billion crickets generate one watt!

Chirping of a cricket affects the human ear to an extent out of proportion to the energy produced by the noise. It is reported that when the sound is heard from a distance of several feet, the cricket is generating about .000000001 watt. This means that it would take one billion crickets to generate one watt! (Ohmrite News, Chicago, Ill.)

Senses temperatures up to 7000 degrees

Recently perfected device measures and controls extremely high temperatures — up to 7000°F — in nuclear and atomic energy research and other projects.

It is designed for sighting on relatively small targets, through a clear path of but one-quarter inch in diameter. In operation, radiant energy from the hot target is focused by the lens on a sensitive thermopile. Amount of radiant energy received by thermopile determines temperature to which hot junction will rise. By a continuing series of determinations and evaluations the temperature of the hot object can be constantly indicated and recorded. Instrument is described as a modified version of the Radiamatic pyrometer head which is used with an Elektronik potentiometer. (Brown Instrument Div., Minneapolis-Honeywell Regulator Co., Wayne & Roberts Aves., Philadelphia 44, Pa.)



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A FEW TYPICAL APPLICATIONS

Paper Pulp: Undiluted black liquor recovery — de-inking — ultra high density bleaching.

Glue Plants: Pressing tankage for water and grease removal.

Fish Reduction Plants: Water and oil from cooked fish wastes and whole fish.

Corn Starch Plants: Dewatering germ and fibre.

Canneries: Vegetable juice extraction, de-watering by-products.

Rayon and Cellophane: For the continuous production of alkali-cellulose in rayon, cellophane, C.M.C. etc. by the slurry system. (See typical flow chart below). Many other Applications.

SAVINGS for YOU!

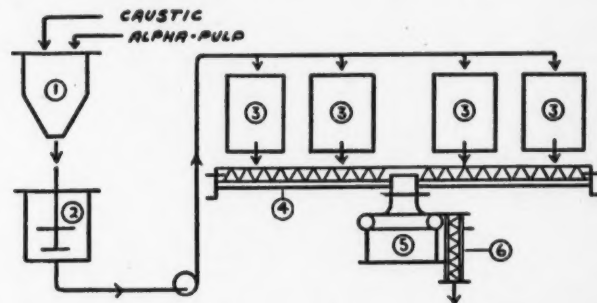
1. Through smaller floor space requirements.
2. High recovery rate in separating liquids from solids or solids from pulp.
3. A continuous process instead of a batch.
4. Great reduction in evaporation process costs.
5. More accurate control of chemical processing.
6. High yield of marketable by-products.
7. Aids in stream pollution problems.
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***The "Floating Cone" holds a constant, automatically controlled pressure against the pressed pulp as it is discharged.

For application to individual problems, for engineering or additional data, please write Jackson and Church Company, Dept. D, at Saginaw, Michigan.



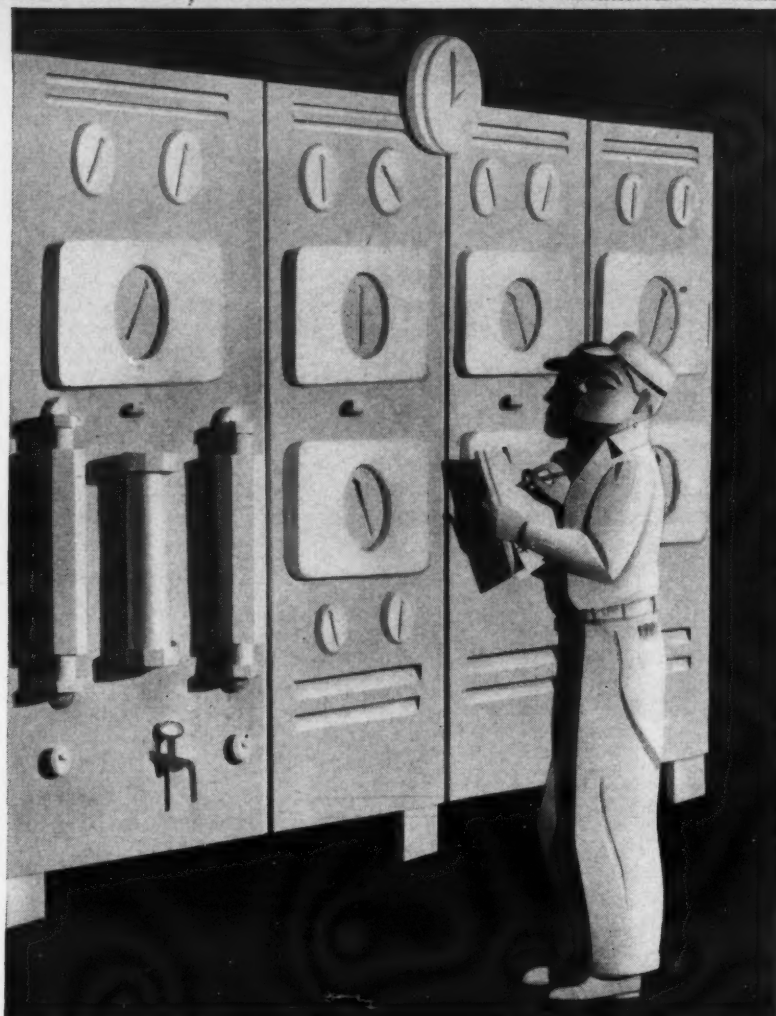
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2. Steep-tank.
3. The Zenith continuous pulp press delivering a uniform product at press-ratios of 2.8 to 1 or better on Alpha pulp.
4. Collecting and cooling conveyor.
5. The Zenith continuous shredder.
6. Cooling and compression screw to deliver the shredded AC at 20° C and a bulk-density of 22 lbs. per cubic foot ready for AC ripening. Capacity of the above unit is 3000 lbs. per hour based on the moisture-free weight of Alpha-pulp.

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